

OHMITE

RELAYS



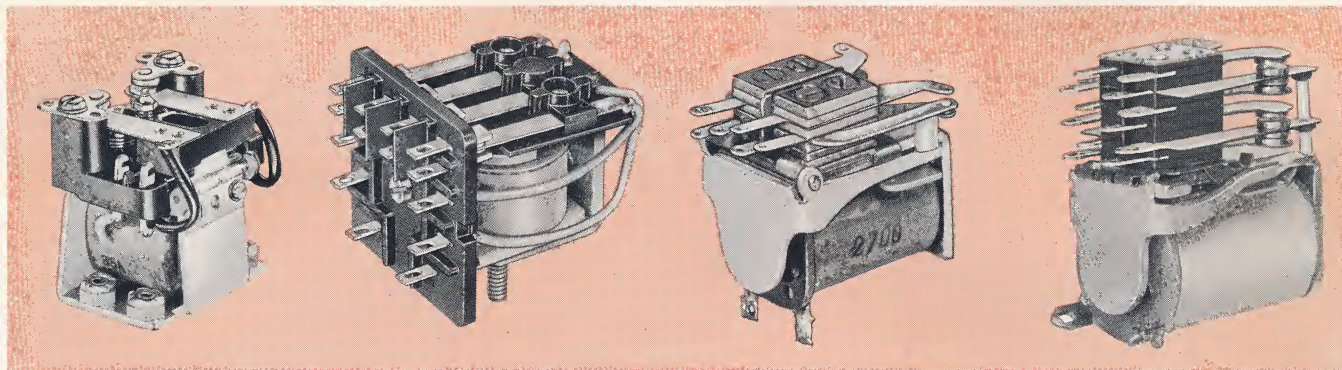
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CATALOG 700B



GENERAL PURPOSE



Typical Molded Panel and Pile-Up Type Relays

Introduction: Ohmite relays embody the same careful engineering, strict quality control and generous use of high quality materials for which Ohmite products have become famous. Parts are plated where necessary for corrosion resistance. Springs are of nickel-silver, phosphor-bronze or beryllium copper. Contacts are fine silver except where the catalog description indicates otherwise. (Special contact materials can be supplied.)

Every precaution is taken to assure reliable operation under demanding as well as ideal ambient conditions. Protection against humidity and moisture is paramount and is accomplished in layer-wound coils, through complete sealing with cellulose-acetate. A sheet of this high temperature plastic is placed between each layer of wire. Then, by means of a patented process, the acetate is caused to flow around the ends of the coil to form a completely plastic-sealed unit. Where layer winding is not possible, suitable bobbin construction is used with (optional) vacuum varnish impregnation.

Relay Selection: The Relay Selection Guide on pages 4 and 5 will be useful in making an initial choice of a relay. All the essential data is presented here including the availability of special mountings and enclosures. The Guide also indicates which relays are carried in stock for immediate delivery. Details of each relay and stock listings, where available, will be found in the individual relay descriptions (see Guide, "Described on page . . ."). See "Contents" page 1 this section, for other special relays.

The data presented in the Guide is qualified by the factors discussed below and should be considered in making a choice of relays for a particular application.

Coil Operating Voltage or Current: The Relay Selection Guide clearly distinguishes between relays that operate on 60-cycle AC or DC. (Other frequency requirements for AC relays should be stated.) Where a relay must operate on a specific voltage or current, the

pull-in and drop-out values should be specified and the allowable variation indicated. Where the variation is not specified, relays will be adjusted to pull in at 80% or less of the nominal voltage for DC relays and 85% or less for AC relays (at normal ambient temperature of 20°C).

Ohmite may be able to furnish relays which will operate on less pull-in power than indicated under "Pull-In Coil Watts" in the Guide, particularly if the desired contact combination is less than the maximum. (Data in the Guide assumes the maximum contact combination unless otherwise indicated.) However, this possibility is affected by the ambient operating temperature and the temperature coefficient of resistance of the coil wire. In applications where shock and vibration are encountered, heavier contact spring pressures may be required to prevent momentary openings. Greater coil power would then be necessary to operate the contacts. Engineering analysis is provided by Ohmite where critical coil requirements arise. The maximum operating voltage for DC relays is 20% above the nominal voltage; for AC relays, 15% above nominal.

Contacts: Contact ratings presented in the Guide and in the individual relay descriptions are conservative and assume that the load is non-inductive. Where extra sets of contacts are available on a relay, "double break contacts", see column "Cont. Rating") the current handling capacity can be increased appreciably. Where the load is non-inductive, it is sometimes possible to switch voltages greater than 115 volts AC. However, current ratings must be reduced—current must be halved as voltage doubles. For voltages over 460 volts AC or 32 volts DC, engineering analysis is required.

For inductive loads, Ohmite can supply silver-tungsten or silver-cadmium-oxide instead of the standard, fine silver contacts. Contact current capacity must also be considered in the light of the duty cycle of the relay. Where a relay is called upon to operate only a few times daily, overloading of the contacts might be permitted. Conversely, where the relay must operate several hun-

AC AND DC RELAYS



dred times a minute for long periods, it may be necessary to use contacts with capacity greater than that demanded by the load.

Mechanical Requirements: Where more than one relay satisfies the electrical requirements, the mechanical requirements may be the determining factor. This involves size of the relay and manner of mounting which is particularly important where shock and vibration are encountered. Where protection from ambient conditions is desired, the availability of enclosures is a factor.

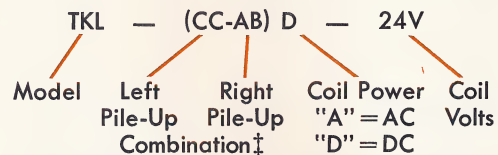
Moisture and Tropicalization Treatment: Coil and phenolic parts can be supplied with a fungus-resistant varnish coating.

Contact Arrangements and Ordering Code: Complete contact combinations are made up from simple combinations which are coded by letter for pile-up type relays such as TKL, TO, TT and TS and by number for molded panel type relays* such as GPR, DOS, DOSY, DO, DOY and CR.

Thus, a double-pole, double-throw combination would consist of two "C" combinations in a pile-up type relay or one "6" combination in a molded panel type (see

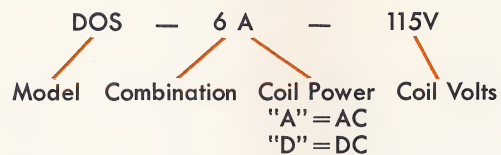
diagrams below). Because of this difference in contact designation, the ordering codes for molded panel and pile-up relays differ as shown.

Example: Code Designation for Pile-Up Relay with DPDT, SPST-N.O. and SPST-N.C. combination.



‡As viewed from terminal end with contact springs on top.

Example: Code Designation for Molded Panel Type Relay with DPDT combination.



Different model codes are assigned to Ohmite relays when they are modified through the addition of plug mountings, dust or hermetically sealed enclosures. The new model codes are obtained through the use of suffixes as described on pages 21-23.

Where enclosures or special mountings are desired, it is necessary to use the modified model code in the code designation. Thus, the simple code designations shown above might appear:

TKLHP-STYLE 2-(CC-AB)D-24V (or)
DOSHP-STYLE 3-6A-115V

See the Guide and individual relay descriptions for available modifications.

Specification Numbers: Relays supplied on an order, and the acknowledgments and invoices pertaining to same, carry the number of the covering specification. This number is unrelated to the code designation and should be used on re-orders instead of the code designation. Specification numbers may be identified by the "X" following the model code as in DOSX-7. Where the item is carried in stock i.e., a "stock item", a "T" follows the number as in DOSX-7T.

When ordering Ohmite Relays, give:

1. The information required in the code designation, or the stock number if the item is carried in stock or the specification number if a non-stock item is being re-ordered.
2. On initial orders, describe the contact load completely; give voltage and current in amperes, type of current—AC or DC and whether the load is inductive or non-inductive.
3. Describe any special requirements in detail such as non-standard mountings.

CONTACT CODES FOR PILE-UP RELAYS					
	A	SINGLE POLE, SINGLE THROW, NORMALLY OPEN, (SPST-N.O.) MAKE		D	MAKE BEFORE BREAK
	B	SINGLE POLE, SINGLE THROW, NORMALLY CLOSED, (SPST-N.C.) BREAK			
	C	SINGLE POLE, DOUBLE THROW (SPDT) BREAK-MAKE		E	BREAK - MAKE BEFORE BREAK

CONTACT CODES FOR MOLDED PANEL RELAYS			
MAKE (NORM. OPEN)	BREAK (NORM. CLOSED)	BREAK — MAKE	
			3 SPDT
1 SPST (N.O.)	2 SPST (N.C.)		
			6 DPDT
4 DPST (N.O.)	5 DPST (N.C.)		
			9 3PDT
7 3PST (N.O.)	8 3PST (N.C.)		
			12 4PDT
10 4PST (N.O.)	11 4PST (N.C.)		
			15 SPST D'BLE. BR-MAKE
13 SPST D'BLE. MAKE	14 SPST D'BLE. BREAK		

*So called because the base and contact carrying parts are panels of molded plastic.



HELPFUL RELAY

AC RELAYS		DC RELAYS			CONTACT RATING AMPS ‡	MAXIMUM CONTACT COMBI- NATION	UNENCLOSED SIZE			DESC. ON PAGE	STOCK RELAYS	APPLI- CATION
MODEL	NOM. COIL WATTS	MODEL	COIL WATTS				Length	Width	Height			
			Nom.	Pull-in								
GPR §	3-Pole 1.6	GPR §	1.4	0.9	5 and 10	3PDT	1 ¹⁵ / ₁₆	1"	1 ¹ / ₁₆ †	6	✓	General purpose, plate circuit, thyatron plate and indicator types
	4-Pole 2.4					4PDT	1 ²⁹ / ₃₂	1 ³ / ₈	1 ¹³ / ₃₂ †			
DOS §	3.0	DOS §	2.5	1.6	15 25 with D.B.	DPDT SPDT with D.B.	1 ⁵ / ₈	1 ¹ / ₂	1 ⁷ / ₈	10	✓	Industrial and mobile
		DOS Y	1.0	.64	15 25 with D.B.	DPDT SPDT with D.B.	1 ⁵ / ₈	1 ¹⁷ / ₃₂	1 ⁷ / ₈	14	✓	Plate circuit
DO §	6.0	DO §	3.0	1.9	10 20 with D.B.	4PDT DPDT with D.B.	2 ¹ / ₁₆ (4 Pole) 1 ⁵ / ₈ (3-Pole)	1 ¹³ / ₁₆	2 ¹ / ₄	12	✓	Industrial and mobile
		DO Y	1.5	1.0	10 20 with D.B.	4PDT DPDT with D.B.	2 ¹ / ₁₆ (4-Pole) 1 ⁵ / ₈ (3-Pole)	1 ¹³ / ₁₆	2 ¹ / ₄	15		Plate circuit
		TT		.15 per pole	5	4PDT	1 ¹⁷ / ₆₄	5 ¹ / ₆₄	1 ¹⁷ / ₆₄ †	16		Aircraft applications
		TS		.25 per pole	10	4PDT	1 ¹⁷ / ₃₂	7 ⁷ / ₈	1 ¹ / ₂ †	17		Aircraft applications
		TKL	1.25	.8	1 3 with pull. cont.	4PDT or 6PST (6 springs in each pile-up)	1 ¹⁹ / ₃₂	3 ³ / ₃₂	1 ¹⁷ / ₃₂ *	18		Aircraft applications
		TO		.1 per pole	3	6PDT	2 ¹ / ₁₆	1 ¹ / ₁₆	1 ²⁹ / ₃₂ †	19		Medium telephone type
QC	5.6	QC	2.75	1.75	25	SPST N.O. D.B. only	1 ²⁹ / ₃₂	1 ³ / ₃₂	1 ²³ / ₃₂	20		Miniature contactor
CR	5.6	CR	2.75	1.75	7.5 15 with D.B.	DPST N.O. SPST with D.B.	1 ²⁵ / ₃₂	1 ¹ / ₃₂	1 ²³ / ₃₂	20		Industrial and mobile, small size

* With 6 springs in each pileup

† With max. no. springs in each pileup

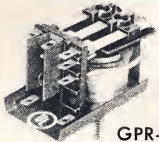
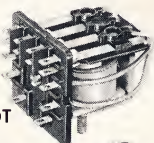
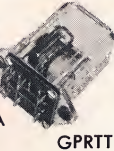
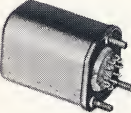
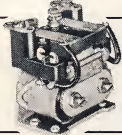
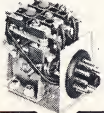
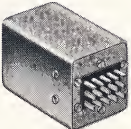
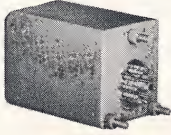
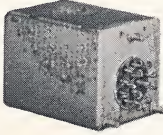
‡ Exclusive of mtg. stud

§ @ 115VAC or 32VDC Resistive.

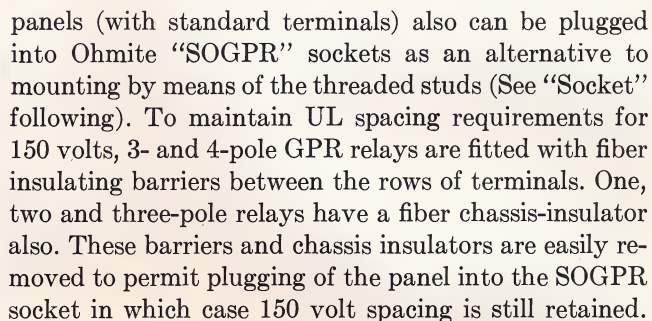
§ UL versions available; pages 6-9 for GPR, 11 for DOS, 13 for DO.

SELECTION GUIDE



BASIC MODELS**	PLUG-IN MODELS, "P" PAGE 21	REMOVABLE ENCLOSURE "EP, TP, TA, TT, TS" PAGES 7, 23	PLUG-IN, NON-REMOVABLE ENCL. Hermetically Sealed (HP) Dust-Tight (CP) PAGE 22	SOLDER TERMINALS, NON-REMOVABLE ENCLOSURES Hermetically Sealed (H) Dust-Tight (C) PAGE 22
 GPR-3PDT  GPR-4PDT	Basic Models Can Plug Into Sockets See P. 7 (SOGPR)	 GPRTA  GPRTT  GPRTS  GPRTP	 GPRHP	 GPRH
 DOSP  DOSYP	 DOSYP  DOSYP	 DOSEP, DOSYEP  DOSTP	DOSHP, DOSYHP, DOSCP, DOSYCP  Style 1  Style 3	DOSH, DOSYH, DOSC, DOSYC  Style 1  Style 2
 DOP  DOYP	 DOP  DOYP	 DOEP, DOYEP	DOHP, DOYHP, DOCP, DOYCP 	DOH, DOC, DOYH, DOYC 
 TTHP			 TTHP Styles 1, 2	 TTH  TTH Styles 1, 2  Style 3
 TSHP			 TSHP Style 1  TSHP Styles 2, 3	 TSH Style 1  TSH Styles 2, 3
 TKLEP		 TKLEP	 TKLHP, TKLCP Style 1  TKLHP, TKLCP Style 2	 TKLH, TKLC Style 1  TKLH, TKLC Style 2
 CRP	 CRP			 CRH, CRC

** For variations not shown here, see pages 24-27

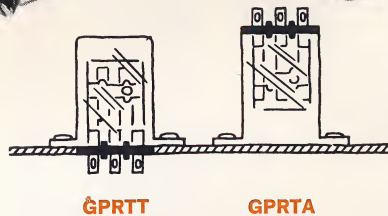


Contact Combinations: Up to four-pole double-throw. Also see “GPRLE Latching Relay” page 24 for larger combinations.

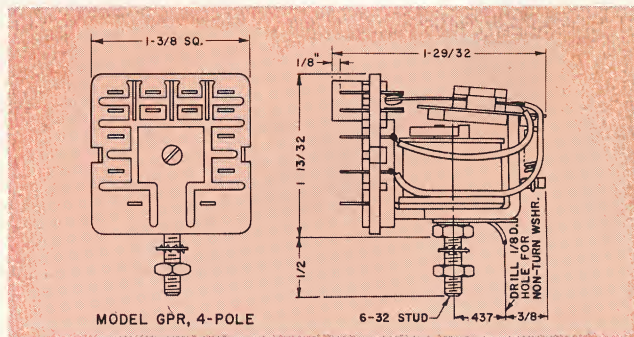
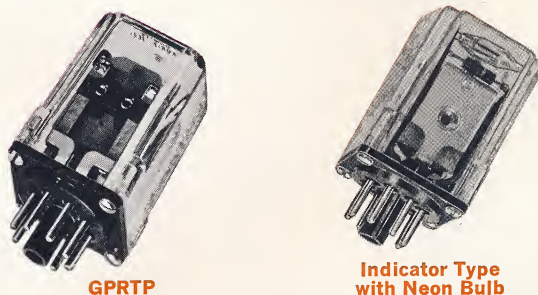
Model GPR relays are an extensive and popular series for general purpose use where versatility, ease of replacement and economy are desired. They are capable of handling substantial power for their small size and offer unusual flexibility for making connections and mounting either with or without enclosures. The series includes plate relays for standard vacuum tubes or thyratrons, and "indicator" relays which incorporate lamps to indicate the energized condition of the coil. A large variety of types and ratings are stocked for immediate delivery.

Construction, Terminals and Mounting: A rigid frame helps to assure long retention of adjustments and an adequate magnetic circuit. A 6-32 threaded stud and nut, standard on unenclosed units, permits mounting on panels up to 1/4" thick. A hole is also required for the non-turn boss on the relay frame. (A "lug-washer" is employed for 4-pole relays). A 6-32 tapped mounting hole can be supplied in place of the stud on 1 to 3-pole relays.

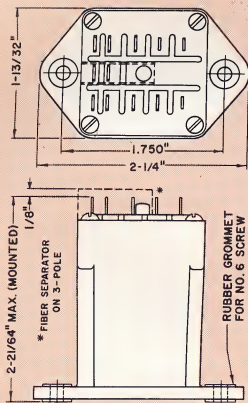
The coil is wound on a nylon bobbin. All connections terminate on one terminal panel on combination solder—quick-connect (push-on) lugs which accept AMP Series 110 female connectors. Relay contacts are integral inlays on the terminals themselves. With all terminals appearing on one panel, these relays are easily incorporated into printed circuit assemblies. The standard



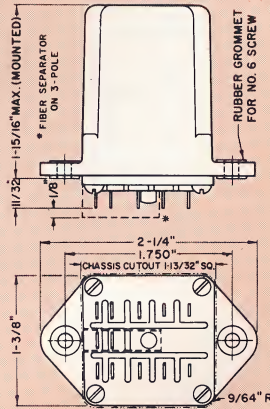
Chassis Mounting of Panel-Type Enclosed Relays



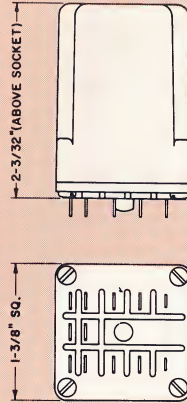
MODEL GPR RELAY (cont.)



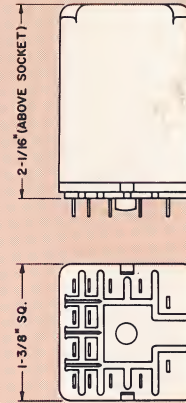
GPRTA Enclosure



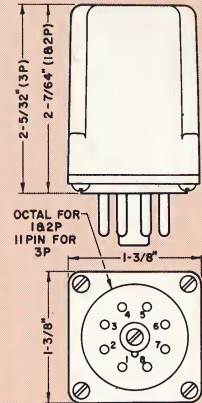
GPRTT Enclosure



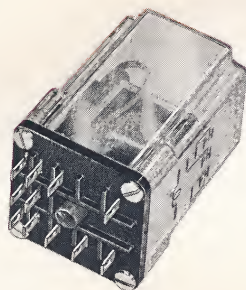
**GPRTS Enclosure
for up to 3-Pole**



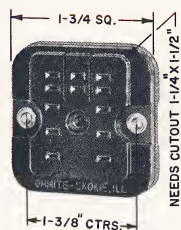
**GPRTS Enclosure
for 4-Pole**



GPRTP Enclosure



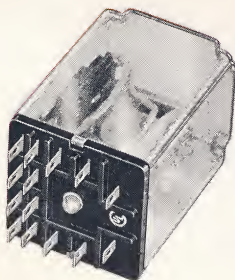
**GPRTS Enclosure
(up to 3PDT)**



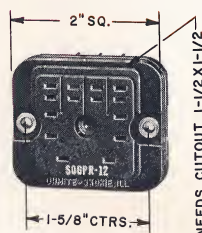
**Socket (SOGPR-9)
for up to 3PDT**



**GPR and GPRTS Relays
in SOGPR Sockets**



**GPRTS Enclosure
(for 4-Pole Relays)**



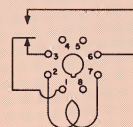
**Socket (SOGPR-12)
for 4-Pole Relays**

SOCKETS FOR GPR and GPRTS RELAYS

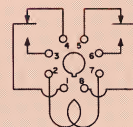
For up to 3PDT: Stock No. SOGPR-9

For 4-pole models: Stock No. SOGPR-12

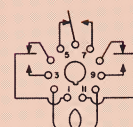
Plug Wiring for GPRTP



SPDT



DPDT



3PDT

Contact Ratings: Two ratings—fine-silver contacts, gold-flashed, 5 amps resistive at 115VAC or 32VDC; silver-cadmium fixed contacts, silver-cadmium-oxide movable contacts, 10 amps.

Coil Operating Voltage Range: Any voltage up to 230 VAC, 60 cycles or 110 VDC.

Coil Wattage: 1.4 watts DC operation; 1.6 watts (2.0 volt-amps) AC except 2.4 watts (3.70 volt-amps) for 4-pole AC relays.

Weights: Figures shown below stock tables are based on three-pole, double-throw relay. Relays with fewer

poles weigh slightly less.

Insulation: Tested at 1500 VAC between all terminals and ground.

ENCLOSED GPR RELAYS

Four GPR enclosures afford a liberal choice of mounting arrangements. Four-pole relays are available only in the GPRTS enclosure described below but the GPRTA version can be made-to-order.

Chassis-Mounting Panel Types: "GPRTA" ("Terminals-Above-Chassis" type) has terminal panel opposite mounting flange; "GPRTT" ("Terminals-Through-



MODEL GPR RELAY (cont.)

STOCK "GPR" RELAYS*

Con- tacts	COIL DATA			5 Amp Contacts					10 Amp Contacts				
				Unenclosed GPR	Enclosed Above Chassis GPRTA†	Enclosed Thru- Chassis GPRTT†	UL   Enclosure for SOGPR Socket GPRTS‡	UL   Enclosed Plug Base GP RTP	UL   Unenclosed GPR	UL   Enclosure for SOGPR Socket GPRTS‡	UL   Enclosed Plug Base GP RTP	Indicator Plug Base GP RTP	
	Volts	Amps.	Ohms										
SPDT	6VAC	.334	4.2	GPRX-3T	GPRTAX-3T	GPRTTX-3T	GPRTSX-6T	GPRTPX-3T	GPRX-203T	GPRTSX-206T	GPRTPX-203T	GPRTPX-291T	
DPDT	6VAC	.334	4.2	GPRX-6T	GPRTAX-6T	GPRTTX-6T	GPRTSX-9T	GPRTPX-6T	GPRX-206T	GPRTSX-209T	GPRTPX-206T		
3PDT	6VAC	.334	4.2	GPRX-9T	GPRTAX-9T	GPRTTX-9T	GPRTSX-403T	GPRTPX-9T	GPRX-209T	GPRTSX-433T	GPRTPX-209T		
4PDT	6VAC	.650	2.5	GPRX-403T					GPRX-433T				
SPDT	12VAC	.167	17	GPRX-12T	GPRTAX-12T	GPRTTX-12T	GPRTSX-15T	GPRTPX-12T	GPRX-212T	GPRTSX-215T	GPRTPX-212T	GPRTPX-292T	
DPDT	12VAC	.167	17	GPRX-15T	GPRTAX-15T	GPRTTX-15T	GPRTSX-18T	GPRTPX-15T	GPRX-215T	GPRTSX-218T	GPRTPX-215T		
3PDT	12VAC	.167	17	GPRX-18T	GPRTAX-18T	GPRTTX-18T	GPRTSX-406T	GPRTPX-18T	GPRX-218T	GPRTSX-436T	GPRTPX-218T		
4PDT	12VAC	.309	10	GPRX-406T					GPRX-436T				
SPDT	24VAC	.084	65	GPRX-21T	GPRTAX-21T	GPRTTX-21T	GPRTSX-24T	GPRTPX-21T	GPRX-221T	GPRTSX-224T	GPRTPX-221T	GPRTPX-293T	
DPDT	24VAC	.084	65	GPRX-24T	GPRTAX-24T	GPRTTX-24T	GPRTSX-27T	GPRTPX-24T	GPRX-224T	GPRTSX-227T	GPRTPX-224T		
3PDT	24VAC	.084	65	GPRX-27T	GPRTAX-27T	GPRTTX-27T	GPRTSX-409T	GPRTPX-27T	GPRX-227T	GPRTSX-439T	GPRTPX-227T		
4PDT	24VAC	.155	40	GPRX-409T					GPRX-439T				
SPDT	115VAC	.0174	1,600	GPRX-30T	GPRTAX-30T	GPRTTX-30T	GPRTSX-33T	GPRTPX-30T	GPRX-230T	GPRTSX-233T	GPRTPX-230T	GPRTPX-294T	
DPDT	115VAC	.0174	1,600	GPRX-33T	GPRTAX-33T	GPRTTX-33T	GPRTSX-36T	GPRTPX-33T	GPRX-233T	GPRTSX-236T	GPRTPX-233T		
3PDT	115VAC	.0174	1,600	GPRX-36T	GPRTAX-36T	GPRTTX-36T	GPRTSX-412T	GPRTPX-36T	GPRX-236T	GPRTSX-442T	GPRTPX-236T		
4PDT	115VAC	.0325	1,000	GPRX-412T					GPRX-442T				
SPDT	230VAC	.0087	7,000	GPRX-39T	GPRTAX-39T	GPRTTX-39T	GPRTSX-42T	GPRTPX-39T	GPRX-239T	GPRTSX-242T	GPRTPX-239T	GPRTPX-295T	
DPDT	230VAC	.0087	7,000	GPRX-42T	GPRTAX-42T	GPRTTX-42T	GPRTSX-45T	GPRTPX-42T	GPRX-242T	GPRTSX-245T	GPRTPX-242T		
3PDT	230VAC	.0087	7,000	GPRX-45T	GPRTAX-45T	GPRTTX-45T	GPRTSX-415T	GPRTPX-45T	GPRX-245T	GPRTSX-445T	GPRTPX-245T		
4PDT	230VAC	.0147	4,000	GPRX-415T					GPRX-445T				
SPDT	6VDC	.23	26	GPRX-48T	GPRTAX-48T	GPRTTX-48T	GPRTSX-51T	GPRTPX-48T	GPRX-248T	GPRTSX-251T	GPRTPX-248T	GPRTPX-296T	
DPDT	6VDC	.23	26	GPRX-51T	GPRTAX-51T	GPRTTX-51T	GPRTSX-54T	GPRTPX-51T	GPRX-251T	GPRTSX-254T	GPRTPX-251T		
3PDT	6VDC	.23	26	GPRX-54T	GPRTAX-54T	GPRTTX-54T	GPRTSX-418T	GPRTPX-54T	GPRX-254T	GPRTSX-448T	GPRTPX-254T		
4PDT	6VDC	.23	26	GPRX-418T					GPRX-448T				
SPDT	12VDC	.114	105	GPRX-57T	GPRTAX-57T	GPRTTX-57T	GPRTSX-60T	GPRTPX-57T	GPRX-257T	GPRTSX-260T	GPRTPX-257T	GPRTPX-297T	
DPDT	12VDC	.114	105	GPRX-60T	GPRTAX-60T	GPRTTX-60T	GPRTSX-63T	GPRTPX-60T	GPRX-260T	GPRTSX-263T	GPRTPX-260T		
3PDT	12VDC	.114	105	GPRX-63T	GPRTAX-63T	GPRTTX-63T	GPRTSX-421T	GPRTPX-63T	GPRX-263T	GPRTSX-451T	GPRTPX-263T		
4PDT	12VDC	.114	105	GPRX-421T					GPRX-451T				
SPDT	24VDC	.060	400	GPRX-66T	GPRTAX-66T	GPRTTX-66T	GPRTSX-69T	GPRTPX-66T	GPRX-266T	GPRTSX-269T	GPRTPX-266T	GPRTPX-298T	
DPDT	24VDC	.060	400	GPRX-69T	GPRTAX-69T	GPRTTX-69T	GPRTSX-72T	GPRTPX-69T	GPRX-269T	GPRTSX-272T	GPRTPX-269T		
3PDT	24VDC	.060	400	GPRX-72T	GPRTAX-72T	GPRTTX-72T	GPRTSX-424T	GPRTPX-72T	GPRX-272T	GPRTSX-454T	GPRTPX-272T		
4PDT	24VDC	.060	400	GPRX-424T					GPRX-454T				
SPDT	110VDC	.0110	10,000	GPRX-75T	GPRTAX-75T	GPRTTX-75T	GPRTSX-78T	GPRTPX-75T	GPRX-275T	GPRTSX-278T	GPRTPX-275T	GPRTPX-299T	
DPDT	110VDC	.0110	10,000	GPRX-78T	GPRTAX-78T	GPRTTX-78T	GPRTSX-81T	GPRTPX-78T	GPRX-278T	GPRTSX-281T	GPRTPX-278T		
3PDT	110VDC	.0110	10,000	GPRX-81T	GPRTAX-81T	GPRTTX-81T	GPRTSX-427T	GPRTPX-81T	GPRX-281T	GPRTSX-457T	GPRTPX-281T		
4PDT	110VDC	.0110	10,000	GPRX-427T					GPRX-457T				
Approx. weight →				2.5 oz.	3.0 oz.	3.0 oz.	3.0 oz.	3.5 oz.	2.5 oz.	3.5 oz.	3.5 oz.	3.5 oz.	

*Column heads carry symbols to indicate UL or CSA (Canadian Standards Association) approval. A color tint in column indicates relay carries UL stamp; a grey tint indicates that relay is recognized under UL "components program" and does not carry UL stamp. See explanation in "UL and CSA Approval."

†4-Pole GPRTS relays are not covered by CSA.

‡GPRTA and GPRTT types as listed by UL, differ slightly from the stock versions above and consequently, are made to order. These UL versions have a "U" added to the catalog number, such as in "GPRTAU." These units will carry the UL stamp. They also have CSA approval and will carry the CSA stamp.

Chassis" type) has terminal panel on same end as mounting flange, requires chassis cutout; "GPRTS" type ("Terminals for Socket Use") is similar to GPRTT but has no mounting flanges. It is intended strictly for plug-in mounting in Ohmite socket "SOGPR" (see "Socket" below). Terminals are the combination solder—quick-connect type (AMP Series 110) described under "Construction." Mounting holes in the flange have rubber grommets except for UL-approved GPRTA (GPRTAU) and GPRTT (GPRTTU) relays which have holes for No. 10 screws in the flanges.

Pin-Plug Base Type, GP RTP: A modified octal plug (see "UL Requirements") is provided for 1-and 2-pole relays; an 11-pin plug for 3-pole relays. The octal plug base is integral with the relay assembly and meets UL

spacing requirements for 150 volts. The cover is held by screws in the corners of the plug base.

Hermetically Sealed GPR Relays: GPRH and GPRHP (plug-base) hermetically sealed relays for up to 3PDT are described on page 22. See illustrations, page 9.

Socket (SOGPR): Unique sockets fit the standard terminal panels of all GPR relays and provide over-the-surface spacing to meet UL requirements for 150 volts. Require chassis cut-out to mount. Hold down springs (see illustration) for unenclosed and enclosed relays, are provided with each socket but are not required except under conditions of vibration or shock. Socket solder-terminals will also accept AMP 110 quick-connectors. See socket listings.

MODEL GPR RELAY (cont.)



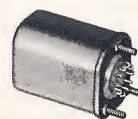
Indicator Relay: Incorporates lamp which lights to indicate energized condition of coil. Available only in GPRTP enclosures for 1- and 2-pole relays, described above. Stocked only in DPDT, 10 amp type. Neon bulb furnished with coil ratings 70 volts and higher; incandescent bulbs for coil ratings below 70 volts.

Plate Circuit Relays: GPR plate circuit relays feature the same physical characteristics described under "Construction . . ." They are adjusted for greater sensitivity and are adaptable to a wide range of electronic circuit controls such as signaling attainment of predetermined current levels in the plate circuits of vacuum tubes. GPR plate relays are supplied in the standard GPR enclosures (see tables).

Thyratron Plate Relay: Designed specifically for plate circuit of thyratron tubes 2050 and 2D21 with 115 VAC supply (see diagram). They are also suitable for operation in series with silicon-controlled rectifiers from a 115 VAC supply. Ready to work, no capacitors or adjustments required, no chatter. Available unenclosed and in all GPR enclosures.

UL and CSA Approval: Column heads in the stock tables carry the UL (Underwriters' Laboratories) and/

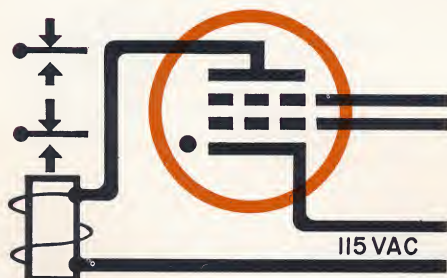
or CSA (Canadian Standards Association) symbols where approval has been granted. A color tint in a column marked with the UL symbol, indicates that the relays are listed by the UL Reexamination Service and carry the UL stamp. A grey tint in the column indicates that the relays are also subject to UL Reexamination Service but are recognized under the "UL Components Program". The acceptability of *such* relays by UL depends upon their combination with other equipment such as sockets, etc., and therefore they do not carry the UL stamp. GPRTA and GPRTT relays as listed by UL are made to order and differ slightly from the stock versions by having "Lexan" instead of polystyrene covers and by not having rubber grommets in the mounting flanges. The UL versions add a "U" to the catalog number as in "GPRTAU". These units will carry the UL and CSA stamps.



GPRH
Hermetically Sealed



GPRHP
Hermetically Sealed



Showing Relay in Plate Circuit of Thyratron

STOCK "GPR" PLATE CIRCUIT RELAYS—5 Amp Contacts

Con- tacts	COIL DATA		Unenclosed GPR	Enclosed Above- Chassis GPRTA	Enclosed Thru- Chassis GPRTT	Enclosed for SOGPR Socket GPRTS	Enclosed Plug-Base GPRTP
	Ohms	Pull-in max. ma.					
SPDT	2,500	7.2	GPRX-82T	GPRTAX-82T	GPRTTX-82T	GPRTSX-463T	GPRTPX-82T
DPDT	2,500	10	GPRX-83T	GPRTAX-83T	GPRTTX-83T		GPRTPX-83T
3PDT	2,500	12.3	GPRX-84T	GPRTAX-84T	GPRTTX-84T		GPRTPX-84T
4PDT	2,500	15.0	GPRX-463T				
SPDT	5,000	5	GPRX-85T	GPRTAX-85T	GPRTTX-85T	GPRTSX-466T	GPRTPX-85T
DPDT	5,000	7.2	GPRX-86T	GPRTAX-86T	GPRTTX-86T		GPRTPX-86T
3PDT	5,000	8.7	GPRX-87T	GPRTAX-87T	GPRTTX-87T		GPRTPX-87T
4PDT	5,000	11	GPRX-466T				
SPDT	10,000	3.6	GPRX-88T	GPRTAX-88T	GPRTTX-88T	GPRTSX-469T	GPRTPX-88T
DPDT	10,000	5	GPRX-89T	GPRTAX-89T	GPRTTX-89T		GPRTPX-89T
3PDT	10,000	6.1	GPRX-90T	GPRTAX-90T	GPRTTX-90T		GPRTPX-90T
4PDT	10,000	7.5	GPRX-469T				
Approx. weight →			2.5 oz.	3.0 oz.	3.0 oz.	3.0 oz.	3.5 oz.

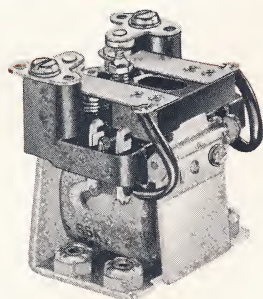
STOCK GPR THYRATRON RELAYS

	5 Amp Contacts					10 Amp Contacts		
Con- tacts	 Unenclosed GPR	Enclosed Above- Chassis GPRTA	Enclosed Thru- Chassis GPRTT	Enclosed for SOGPR Socket GPRTS	 Enclosed Plug- Base GPRTP	 Unenclosed GPR	Enclosed for SOGPR Socket GPRTS	 Enclosed Plug- Base GPRTP
SPDT	GPRX-191T	GPRTAX-191T	GPRTTX-191T	GPRTSX-473T	GPRTPX-191T	GPRX-391T	GPRTSX-483T	GPRTPX-391T
DPDT	GPRX-192T	GPRTAX-192T	GPRTTX-192T		GPRTPX-192T	GPRX-392T		GPRTPX-392T
3PDT	GPRX-193T	GPRTAX-193T	GPRTTX-193T		GPRTPX-193T	GPRX-393T		GPRTPX-393T
4PDT	GPRX-473T					GPRX-483T		



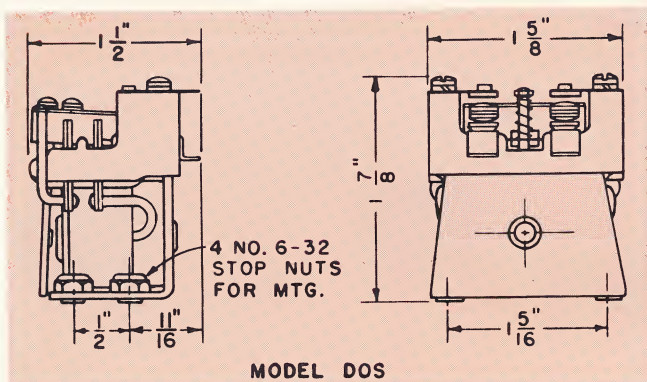
MODEL DOS RELAY

AC OR DC OPERATION—STOCK AND MADE-TO-ORDER



Model DOS

The Model DOS is a general purpose relay with a wide range of applications. It meets the rigorous standards for aircraft relays and industrial needs for a light-weight relay capable of handling loads demanded of much heavier relays. Contact and terminal carrying parts are molded panels of high grade phenolic material.



MODEL DOS

STOCK DOS RELAYS—15 Amp. Contacts*

Cat. No.	Type	Normal Position	COIL DATA		
			Volts	Amps.	D.C. Ohms
Unenclosed					
DOSX-229T	SPST*	Open	6 VAC	.890	1.07
DOSX-230T	DPST	Open	6 VAC	.890	1.07
DOSX-30T	DPDT	—	6 VAC	.890	1.07
DOSX-16T	DPDT	—	12 VAC	.460	4.20
DOSX-231T	SPST*	Open	24 VAC	.269	15.5
DOSX-232T	DPST	Open	24 VAC	.269	15.5
DOSX-162T	DPDT	—	24 VAC	.269	15.5
DOSX-233T	SPST*	Open	115 VAC	.043	450
DOSX-234T	DPST	Open	115 VAC	.043	450
DOSX-7T	DPDT	—	115 VAC	.043	450
DOSX-235T	SPST*	Open	230 VAC	.030	1,450
DOSX-236T	DPST	Open	230 VAC	.030	1,450
DOSX-12T	DPDT	—	230 VAC	.030	1,450
DOSX-158T	DPDT	—	6 VDC	.450	13.4
DOSX-66T	DPDT	—	12 VDC	.210	56.2
DOSX-9T	DPDT	—	24 VDC	.105	230.0
DOSX-237T	SPST*	Open	110 VDC	.022	5,000
DOSX-238T	DPST	Open	110 VDC	.022	5,000
DOSX-59T	DPDT	—	110 VDC	.022	5,000
DOSX-177T	DPDT	—	220 VDC	.013	16,400
With Plug Base**					
DOSPX-1T‡	DPDT	—	115 VAC	.043	450
With Dust Covers**					
DOSEPX-5T‡	DPDT	—	115 VAC	.043	450
In Hermetic Enclosure**					
①DOSHX-40T	DPDT	—	115 VAC	.043	450
②DOSHPX-47T‡	DPDT	—	115 VAC	.043	450
①DOSHX-39T	DPDT	—	110 VDC	.022	5,000
②DOSPHX-46T‡	DPDT	—	110 VDC	.022	5,000

*Except double break contacts—25 amps resistive.

**See text above for pages listing dimensions. Weights: 8 oz. each approx.

†See right for plug wiring.

①In DOSH style 2 enclosure.

②In DOSHP style 3 enclosure.

Coil Wattage: Normally rated at 2.5 watts for DC operation with a temperature rise not exceeding 45°C. For AC operation, the rating is 3 watts with a temperature rise not exceeding 65°C. Lower wattages are available.

Coil Operating Voltage Range: Coils can be supplied to operate on any voltage up to 230 VDC or 440 VAC 60 cycles. Stock voltages are shown in table.

Insulation: Tested at 1500 VAC.

Contact Combination: Maximum standard, DPDT.

Contact Rating: Nominal 15 amps for 115 VAC or 32 VDC resistive load (see stock table).

Weight: Approximately 4 ounces (114 grams).

Mounting Styles: Standard mounting, Style 1, with stop nuts, as illustrated. Other mountings available as listed. All holes are on same centers as Style 1.

Style 2—4 tapped holes #6-32

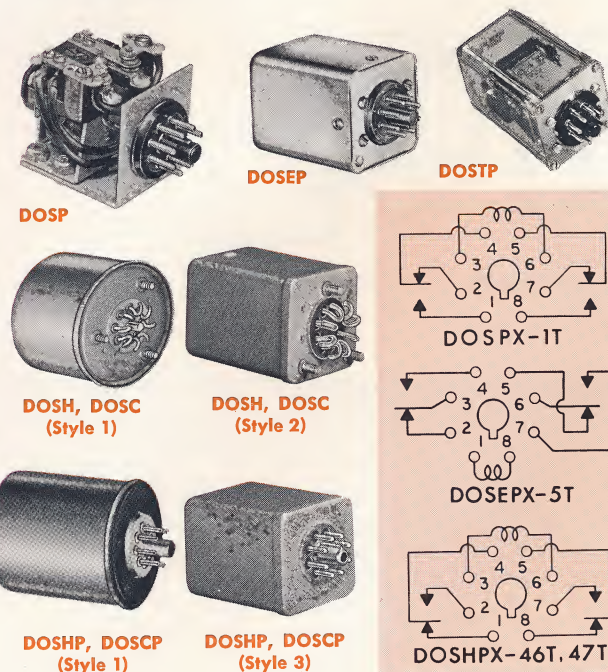
Style 3—4 holes .165 dia. (Clearance for #8 screw)

Style 4—4 holes .152 dia. (Clearance for #6 screw)

Style 5—2 holes .1875 dia. on 2 1/4" centers (permits mounting from front of panel).

Enclosed, Plug-In and Special Terminal DOS

Relays: Hermetically sealed relays, DOSH and (plug-base) DOSHP (see stock listings left), Dust-Tight DOSC and (plug-base) DOSCP are described on page 22; Plug-base relay DOSP on page 21; Plug-base with dust-covers DOSEP, DOSTP on page 23; With special terminals, page 26.

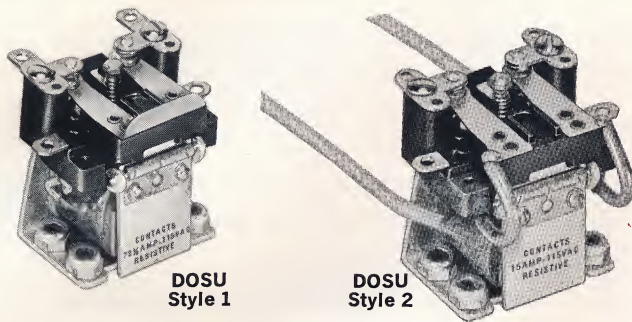


Mountings and Enclosures for DOS Relay

Plug Wiring for Stock Plug-Base DOS Relays

MODEL DOSU RELAY

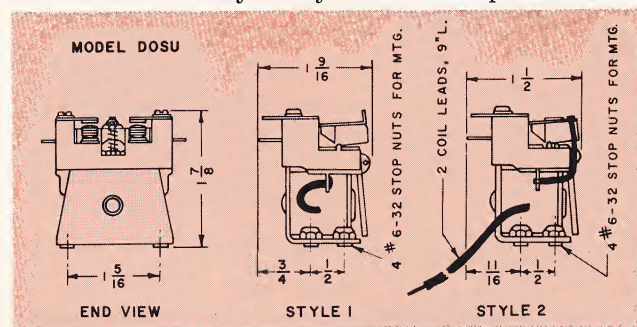
UL APPROVED DOS—STOCK AND MADE-TO-ORDER



Ohmite DOS relays listed under Underwriters' Laboratories Reexamination Service are designated "DOSU." Essentially, they are DOS types like those described on page 10 but incorporate a number of modifications to meet UL spacing requirements. The modifications consist principally of different coil wrappings to satisfy UL insulation thickness and spacing requirements.

In all other respects—frame size, basic construction and configuration, mounting facilities, etc., DOSU and

DOS relays are the same. Both series feature "molded panel" construction where the terminal and contact-carrying parts are panels of high grade phenolic plastic. Operating characteristics and ratings are the same except that Underwriters' Laboratories limits the operating voltage range to 110VDC or 115VAC. Both the DOS or DOSU families of relays have wide general purpose use, meeting industrial needs for a lightweight relay capable of handling the loads demanded of heavier models. DOSU relays carry the UL stamp.



UL APPROVED DOS RELAYS — 15 AMP CONTACTS† — D.B. 22½ AMPS†

Listings in Tinted Areas are In Stock

AC COIL						
Cat No.	Contacts	Normal Position	COIL DATA			Style
			AC Volts	Amps.	DC Ohms	
DOSUX-1	SPST	Open	6	.890	1.07	2
DOSUX-2	SPST	Closed	6	.890	1.07	2
DOSUX-3	SPDT	—	6	.890	1.07	2
DOSUX-4	DPST	Open	6	.890	1.07	2
DOSUX-5	DPST	Closed	6	.890	1.07	2
DOSUX-6	DPDT	—	6	.890	1.07	2
DOSUX-7	SPST*	Open	6	.890	1.07	1
DOSUX-8	SPST*	Closed	6	.890	1.07	1
DOSUX-9	SPDT*	—	6	.890	1.07	1
DOSUX-10	SPST	Open	12	.460	4.20	2
DOSUX-11	SPST	Closed	12	.460	4.20	2
DOSUX-12	SPDT	—	12	.460	4.20	2
DOSUX-13	DPST	Open	12	.460	4.20	2
DOSUX-14	DPST	Closed	12	.460	4.20	2
DOSUX-15	DPDT	—	12	.460	4.20	2
DOSUX-16	SPST*	Open	12	.460	4.20	1
DOSUX-17	SPST*	Closed	12	.460	4.20	1
DOSUX-18	SPDT*	—	12	.460	4.20	1
DOSUX-19	SPST	Open	24	.269	15.5	2
DOSUX-20	SPST	Closed	24	.269	15.5	2
DOSUX-21	SPDT	—	24	.269	15.5	2
DOSUX-22	DPST	Open	24	.269	15.5	2
DOSUX-23	DPST	Closed	24	.269	15.5	2
DOSUX-24	DPDT	—	24	.269	15.5	2
DOSUX-25	SPST*	Open	24	.269	15.5	1
DOSUX-26	SPST*	Closed	24	.269	15.5	1
DOSUX-27	SPDT*	—	24	.269	15.5	1
DOSUX-28	SPST	Open	115	.043	450	2
DOSUX-29	SPST	Closed	115	.043	450	2
DOSUX-30	SPDT	—	115	.043	450	2
DOSUX-31	DPST	Open	115	.043	450	2
DOSUX-32	DPST	Closed	115	.043	450	2
DOSUX-33	DPDT	—	115	.043	450	2
DOSUX-34	SPST*	Open	115	.043	450	1
DOSUX-35	SPST*	Closed	115	.043	450	1
DOSUX-36	SPDT*	—	115	.043	450	1

DC COIL						
Cat No.	Contacts	Normal Position	COIL DATA			Style
			DC Volts	Amps.	DC Ohms	
DOSUX-37	SPST	Open	6	.450	13.4	2
DOSUX-38	SPST	Closed	6	.450	13.4	2
DOSUX-39	SPDT	—	6	.450	13.4	2
DOSUX-40	DPST	Open	6	.450	13.4	2
DOSUX-41	DPST	Closed	6	.450	13.4	2
DOSUX-42	DPDT	—	6	.450	13.4	2
DOSUX-43	SPST*	Open	6	.450	13.4	1
DOSUX-44	SPST*	Closed	6	.450	13.4	1
DOSUX-45	SPDT*	—	6	.450	13.4	1
DOSUX-46	SPST	Open	12	.210	56.2	2
DOSUX-47	SPST	Closed	12	.210	56.2	2
DOSUX-48	SPDT	—	12	.210	56.2	2
DOSUX-49	DPST	Open	12	.210	56.2	2
DOSUX-50	DPST	Closed	12	.210	56.2	2
DOSUX-51	DPDT	—	12	.210	56.2	2
DOSUX-52	SPST*	Open	12	.210	56.2	1
DOSUX-53	SPST*	Closed	12	.210	56.2	1
DOSUX-54	SPDT*	—	12	.210	56.2	1
DOSUX-55	SPST	Open	24	.105	230.0	2
DOSUX-56	SPST	Closed	24	.105	230.0	2
DOSUX-57	SPDT	—	24	.105	230.0	2
DOSUX-58	DPST	Open	24	.105	230.0	2
DOSUX-59	DPST	Closed	24	.105	230.0	2
DOSUX-60	DPDT	—	24	.105	230.0	2
DOSUX-61	SPST*	Open	24	.105	230.0	1
DOSUX-62	SPST*	Closed	24	.105	230.0	1
DOSUX-63	SPDT*	—	24	.105	230.0	1
DOSUX-64	SPST	Open	110	.022	500.0	2
DOSUX-65	SPST	Closed	110	.022	500.0	2
DOSUX-66	SPDT	—	110	.022	500.0	2
DOSUX-67	DPST	Open	110	.022	500.0	2
DOSUX-68	DPST	Closed	110	.022	500.0	2
DOSUX-69	DPDT	—	110	.022	500.0	2
DOSUX-70	SPST*	Open	110	.022	500.0	1
DOSUX-71	SPST*	Closed	110	.022	500.0	1
DOSUX-72	SPDT*	—	110	.022	500.0	1

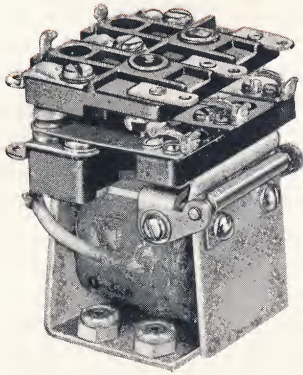
*Double break contacts—22.5 amps.

†Resistive.



MODEL DO RELAY

AC OR DC OPERATION—STOCK AND MADE-TO-ORDER



DO 3-Pole

The Model DO relay is similar to the Model DOS relay and has the same mounting dimensions. It offers a greater maximum contact combination (4PDT) and is particularly adaptable to aircraft and mobile equipment applications where severe shock and vibration may be encountered.

Coil Wattage: Rated at 3 watts for DC operation with

a temperature rise not exceeding 45°C; for AC operation, the rating is 6 watts with a temperature rise not exceeding 75°C. Lower wattages are available.

Coil Operating Voltage Range: For any voltage up to 230 VDC or 440 VAC 60 cycle.

Insulation: Tested at 1500 VAC between all terminals and ground.

Contact Combination: Maximum standard combinations: 3PDT and 4PDT.

Contact Rating: Nominal 10 amps for 115 VAC or 32 VDC resistive load (see stock table).

Weight: For DO-3 pole approximately 5 ounces (140 grams); for DO-4 pole 6 ounces (168 grams).

Mounting Styles: Standard mounting, Style 1, with stop nuts as illustrated. Others below. Holes for Styles 2, 3 and 4 on same centers as Style 1.

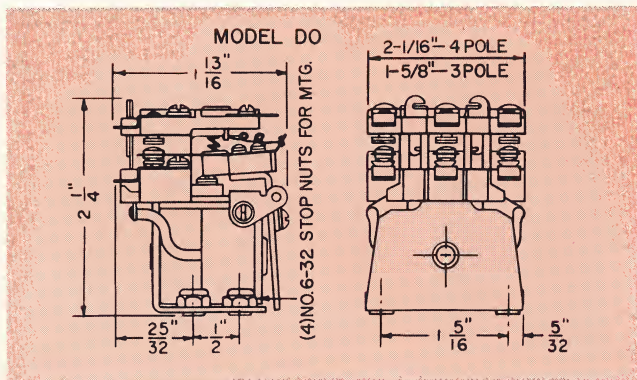
Style 2—4 tapped holes #6-32

Style 3—4 holes .165 dia. (Clearance for #8 screw)

Style 4—4 holes .152 dia. (Clearance for #6 screw)

Style 5—2 holes .1875 dia. on 2 1/4" centers (permits mounting from front of panel).

Enclosed, Plug-In and Special Terminal DO Relays (Note listings in stock table at right): Hermetically Sealed Relays DOH and (plug-in type) DOHP, also dust-tight relays DOC and (plug-in type) DOCP on

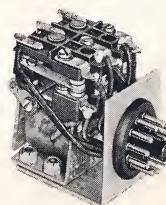


page 22; Plug mounted relay with dust cover DOEP on page 23; Plug mounted relay DOP on page 21; Binding-post terminal relay DOB, also DO relay with push-on (AMP style) and screw terminals are shown on page 26.

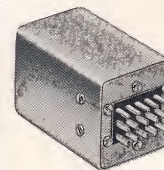
STOCK DO RELAYS—10 Amp. Contacts*

Cat. No.	Type	Normal Position	COIL DATA		
			Volts	Amps.	D.C. Ohms
Unenclosed					
DOX-50T	3PDT	—	6 VAC	2.33	0.36
DOX-183T	4PDT	—	6 VAC	2.33	0.36
DOX-49T	3PDT	—	12 VAC	1.28	1.40
DOX-184T	4PDT	—	12 VAC	1.28	1.40
DOX-181T	3PDT	—	24 VAC	.57	5.50
DOX-185T	4PDT	—	24 VAC	.57	5.50
DOX-226T	DPST*	Open	115 VAC	.110	145.0
DOX-227T	3PST	Open	115 VAC	.110	145.0
DOX-46T	3PDT	—	115 VAC	.110	145.0
DOX-228T	4PST	Open	115 VAC	.110	145.0
DOX-53T	4PDT	—	115 VAC	.110	145.0
DOX-61T	3PDT	—	230 VAC	.070	550.0
DOX-130T	4PDT	—	230 VAC	.070	550.0
DOX-145T	3PDT	—	6 VDC	.487	12.3
DOX-186T	4PDT	—	6 VDC	.487	12.3
DOX-51T	3PDT	—	12 VDC	.231	51.8
DOX-102T	4PDT	—	12 VDC	.231	51.8
DOX-141T	3PDT	—	24 VDC	.105	230.0
DOX-137T	4PDT	—	24 VDC	.105	230.0
DOX-93T	3PDT	—	110 VDC	.022	5,000
DOX-187T	4PDT	—	110 VDC	.022	5,000
DOX-182T	3PDT	—	220 VDC	.014	16,100
DOX-188T	4PDT	—	220 VDC	.014	16,100
In Hermetic Enclosure**					
①DOHPX-16T‡	3PDT	—	115 VAC	.110	145.0
①DOHPX-15T‡	4PDT	—	115 VAC	.110	145.0
②DOHX-22T	3PDT	—	115 VAC	.110	145.0
②DOHX-23T	4PDT	—	115 VAC	.110	145.0

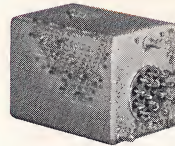
*Except double break contacts—20 amps. **See text above for pages listing dimensions. Weights: 3-pole hermetic relay approx. 14 oz.; 4-pole approx. 15 oz. †See below for plug wiring. ①In DOHP enclosure. ②In DOH enclosure.



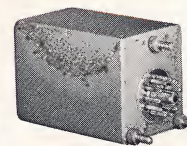
DOP



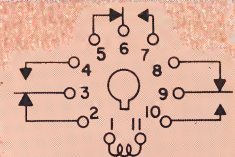
DOEP



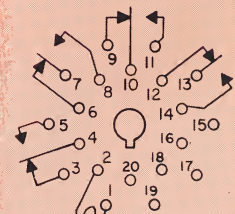
DOH, DOC



DOHP, DOCP



DOHPX-16T



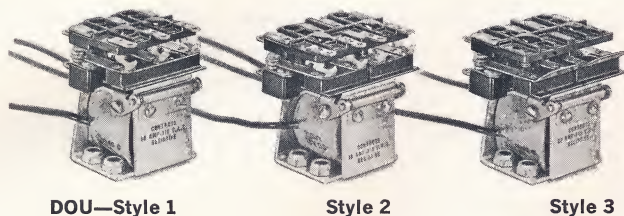
DOHPX-15T

Wiring for Plug-Base Stock DO Relays

Mountings and Enclosures for DO Relay

MODEL DOU RELAY

UL APPROVED DO—STOCK AND MADE-TO-ORDER



DOU—Style 1

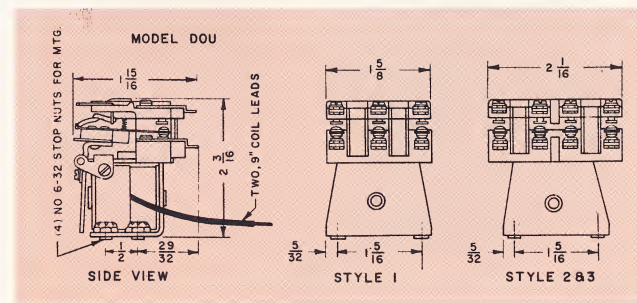
Style 2

Style 3

Model "DO" relays listed under Underwriters' Laboratories Reexamination Service are designated "DOU." Essentially, they are "DO" types like those on page 12 but incorporate a number of modifications to meet UL spacing requirements. The modifications consist principally of different terminals, addition of flexible coil leads and different coil wrappings to satisfy UL insulation thickness requirements. DOU relays carry the UL stamp.

In all other respects—frame size, basic construction

and configuration, mounting facilities, etc., DOU and DO relays are the same. Both series feature "molded panel" construction where the terminal and contact-carrying parts are panels of high grade phenolic plastic. Operating characteristics are also the same except that UL limits operating voltage to 220VDC or 230VAC.



UL APPROVED DO RELAYS — 10 AMP CONTACTS† — D.B. 20 AMP*

Listings in Tinted Areas are In Stock

AC COIL						
Cat. No.	Con-tacts	Normal Position	COIL DATA			
			AC Volts	Amps.	DC Ohms	Style
DOUX-1	3PST	Open	6	2.33	0.36	1
DOUX-2	3PST	Closed	6	2.33	0.36	1
DOUX-3	3PDT	—	6	2.33	0.36	1
DOUX-4	4PST	Open	6	2.33	0.36	2
DOUX-5	4PST	Closed	6	2.33	0.36	2
DOUX-6	4PDT	—	6	2.33	0.36	2
DOUX-7	DPST*	Open	6	2.33	0.36	3
DOUX-8	DPST*	Closed	6	2.33	0.36	3
DOUX-9	DPDT*	—	6	2.33	0.36	3
DOUX-10	3PST	Open	12	1.28	1.40	1
DOUX-11	3PST	Closed	12	1.28	1.40	1
DOUX-12	3PDT	—	12	1.28	1.40	1
DOUX-13	4PST	Open	12	1.28	1.40	2
DOUX-14	4PST	Closed	12	1.28	1.40	2
DOUX-15	4PDT	—	12	1.28	1.40	2
DOUX-16	DPST*	Open	12	1.28	1.40	3
DOUX-17	DPST*	Closed	12	1.28	1.40	3
DOUX-18	DPDT*	—	12	1.28	1.40	3
DOUX-19	3PST	Open	24	.57	5.50	1
DOUX-20	3PST	Closed	24	.57	5.50	1
DOUX-21	3PDT	—	24	.57	5.50	1
DOUX-22	4PST	Open	24	.57	5.50	2
DOUX-23	4PST	Closed	24	.57	5.50	2
DOUX-24	4PDT	—	24	.57	5.50	2
DOUX-25	DPST*	Open	24	.57	5.50	3
DOUX-26	DPST*	Closed	24	.57	5.50	3
DOUX-27	DPDT*	—	24	.57	5.50	3
DOUX-28	3PST	Open	115	.110	145	1
DOUX-29	3PST	Closed	115	.110	145	1
DOUX-30	3PDT	—	115	.110	145	1
DOUX-31	4PST	Open	115	.110	145	2
DOUX-32	4PST	Closed	115	.110	145	2
DOUX-33	4PDT	—	115	.110	145	2
DOUX-34	DPST*	Open	115	.110	145	3
DOUX-35	DPST*	Closed	115	.110	145	3
DOUX-36	DPDT*	—	115	.110	145	3
DOUX-37	3PST	Open	230	.070	550	1
DOUX-38	3PST	Closed	230	.070	550	1
DOUX-39	3PDT	—	230	.070	550	1
DOUX-40	4PST	Open	230	.070	550	2
DOUX-41	4PST	Closed	230	.070	550	2
DOUX-42	4PDT	—	230	.070	550	2
DOUX-43	DPST*	Open	230	.070	550	3
DOUX-44	DPST*	Closed	230	.070	550	3
DOUX-45	DPDT*	—	230	.070	550	3

*Double break contacts—20 amps resistive.

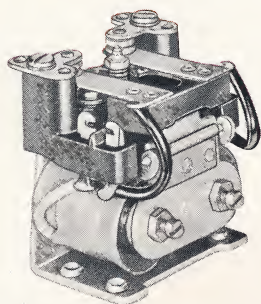
DC COIL						
Cat. No.	Con-tacts	Normal Position	COIL DATA			
			DC Volts	Amps.	DC Ohms	Style
DOUX-46	3PST	Open	6	.487	12.3	1
DOUX-47	3PST	Closed	6	.487	12.3	1
DOUX-48	3PDT	—	6	.487	12.3	1
DOUX-49	4PST	Open	6	.487	12.3	2
DOUX-50	4PST	Closed	6	.487	12.3	2
DOUX-51	4PDT	—	6	.487	12.3	2
DOUX-52	DPST*	Open	6	.487	12.3	3
DOUX-53	DPST*	Closed	6	.487	12.3	3
DOUX-54	DPDT*	—	6	.487	12.3	3
DOUX-55	3PST	Open	12	.231	51.8	1
DOUX-56	3PST	Closed	12	.231	51.8	1
DOUX-57	3PDT	—	12	.231	51.8	1
DOUX-58	4PST	Open	12	.231	51.8	2
DOUX-59	4PST	Closed	12	.231	51.8	2
DOUX-60	4PDT	—	12	.231	51.8	2
DOUX-61	DPST*	Open	12	.231	51.8	3
DOUX-62	DPST*	Closed	12	.231	51.8	3
DOUX-63	DPDT*	—	12	.231	51.8	3
DOUX-64	3PST	Open	24	.105	230	1
DOUX-65	3PST	Closed	24	.105	230	1
DOUX-66	3PDT	—	24	.105	230	1
DOUX-67	4PST	Open	24	.105	230	2
DOUX-68	4PST	Closed	24	.105	230	2
DOUX-69	4PDT	—	24	.105	230	2
DOUX-70	DPST*	Open	24	.105	230	3
DOUX-71	DPST*	Closed	24	.105	230	3
DOUX-72	DPDT*	—	24	.105	230	3
DOUX-73	3PST	Open	110	.022	5000	1
DOUX-74	3PST	Closed	110	.022	5000	1
DOUX-75	3PDT	—	110	.022	5000	1
DOUX-76	4PST	Open	110	.022	5000	2
DOUX-77	4PST	Closed	110	.022	5000	2
DOUX-78	4PDT	—	110	.022	5000	2
DOUX-79	DPST*	Open	110	.022	5000	3
DOUX-80	DPST*	Closed	110	.022	5000	3
DOUX-81	DPDT*	—	110	.022	5000	3
DOUX-82	3PST	Open	220	.014	16100	1
DOUX-83	3PST	Closed	220	.014	16100	1
DOUX-84	3PDT	—	220	.014	16100	1
DOUX-85	4PST	Open	220	.014	16100	2
DOUX-86	4PST	Closed	220	.014	16100	2
DOUX-87	4PDT	—	220	.014	16100	2
DOUX-88	DPST*	Open	220	.014	16100	3
DOUX-89	DPST*	Closed	220	.014	16100	3
DOUX-90	DPDT*	—	220	.014	16100	3

†Resistive. On 3-pole relays, rating can be 5 amps at 230 VAC.



MODEL DOSY RELAY

DC OPERATION—STOCK AND MADE-TO-ORDER



Model DOSY

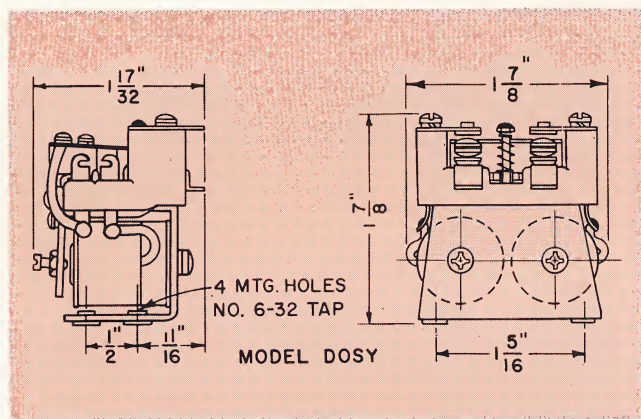
The Model DOSY relay is similar to the Model DOS relay in construction with the exception that the DOSY relay is equipped with twin coils. This two coil design increases the magnetic efficiency (sensitivity) of the relay by permitting a greater number of ampere-turns. This increased operating sensitivity

makes the DOSY adaptable to a wide range of electronic control circuits, such as plate circuit controls or as underload or overload controls in DC circuits to signal attainment of predetermined current levels.

Coil Wattage: The operating coil is normally rated at 1.00 watt for DC operation with a temperature rise not exceeding 45°C. Lower wattages are available on special designs.

Coil Operating Voltage Range: Coils can be supplied to operate on any voltage up to 120 VDC.

Insulation: Tested at 1500 VAC between all terminals and ground.



TYPICAL OPERATING DATA FOR DC OPERATION

DC Voltage	Total Ohms Resistance for Both Coils	Current Amperes
6	35.6	.170
12	138.0	.087
24	540.0	.045
48	2260.0	.022
110	13600.0	.0081

Contact Combination: Maximum standard contact combination double-pole, double-throw; other combinations available upon request, and as per table.

Contact Rating: 15 amperes at 115 VAC or 32 VDC resistive load.

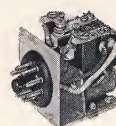
Weight: Approximately 4 1/2 ounces (128 grams).

Mounting Styles: Standard mounting is shown in dimension diagram. An optional style provides two .1875 dia. holes on 2 1/4" centers—permits mounting of relay from front of panel.

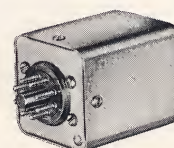
STOCK DOSY RELAYS

Cat. No.	Type	COIL DATA		
		D.C. Ohms	Max. Pull-in Current	Contact Amps.
DOSYX-67T	DPDT	10,000	8 MA	15
DOSYX-68T	DPDT	5,000	11 MA	15
DOSYX-69T	SPDT	10,000	5 MA	15
DOSYX-70T	SPDT	5,000	7 MA	15

Plug-In, Enclosed and Special Terminal DOSY Relays: Plug-in type relay DOSYP is described on page 21; Hermetically sealed relays DOSYH and DOSYHP (plug-in type), and dust tight relays DOSYC and DOSYCP (plug-in type) on page 22; DOSY relays with push-on (AMP style) or screw terminals are described on page 26.



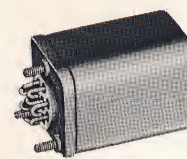
DOSYP



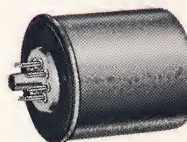
DOSYEP



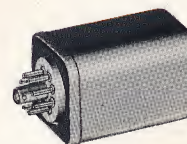
DOSYH,
DOSYC
(Style 1)



DOSYH,
DOSYC
(Style 2)



DOSYHP,
DOSYCP
(Style 1)



DOSYHP,
DOSYCP
(Style 3)

Mountings and Enclosures for DOSY Relay

MODEL DOY RELAY

DC OPERATION — MADE-TO-ORDER



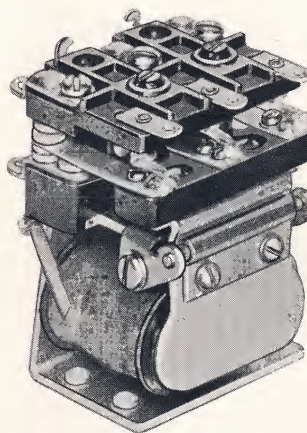
The Model DOY relay is similar to the Model DO relay in construction with the exception that the DOY relay is equipped with twin coils. This two coil design increases the magnetic efficiency (sensitivity) of the relay by permitting a greater number of ampere-turns. The consequent low power requirement coupled with the high load carrying capacity, makes this relay adaptable to a wide variety of industrial applications. It is useful, particularly in electronic circuits as a plate circuit relay, where multiple contact combinations are required.

Coil Wattage: The Model DOY relay is available only for DC operation. The operating coils are normally rated at 1.5 watts DC with a temperature rise not exceeding 45°C. Lower wattages are available on special designs.

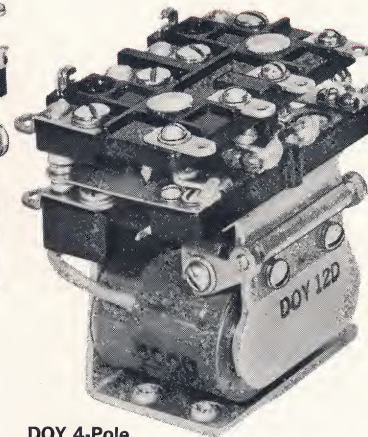
Coil Operating Voltage Range: Coils can be supplied for any voltage up to 115 VDC.

Insulation: Tested at 1500 VAC between all terminals and ground.

Contact Combination: Maximum standard contact combination is four-pole, double-throw for the four-



DOY 3-Pole;



DOY 4-Pole

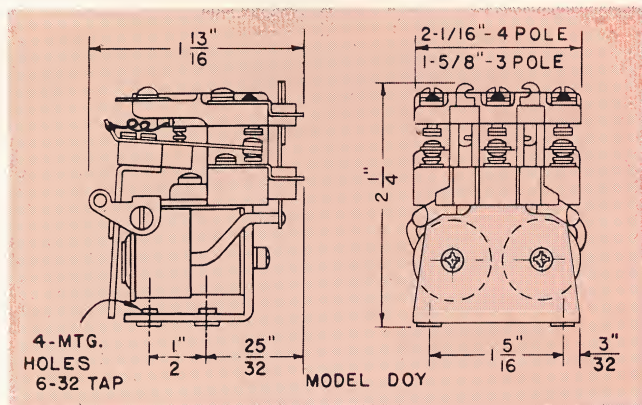
pole relay; three-pole, double-throw for the three-pole relay; other combinations available, upon request.

Contact Rating: 10 amperes at 115 VAC or 32 VDC resistive load.

Mounting Styles: Standard mounting is shown in dimension diagram. An optional style provides two .1875 dia. holes on 2 1/4" centers—permits mounting of relay from front of panel.

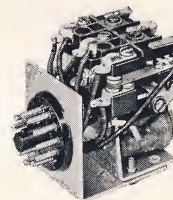
Weight: Approximately 8 ounces (227 grams) for 4-pole relay.

Plug-In, Enclosed and Special Terminal DOY Relays: Plug-In relay DOYP described on page 21; Plug-in type with dust cover DOYEP on page 23; Hermetically sealed relays DOYH and (plug-in type) DOYHP and dust tight relays DOYC and DOYCP (plug-in type) on page 22; DOY relays with push-on (AMP style) terminals and screw terminals on page 26.

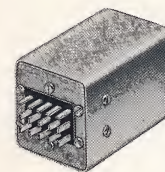


TYPICAL OPERATING DATA FOR DC OPERATION

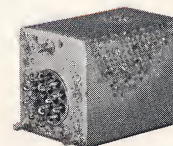
DC Voltage	Resistance Ohms	Current Amperes
6	26	.230
12	100	.120
24	380	.063
48	1,380	.035
110	10,000	.011



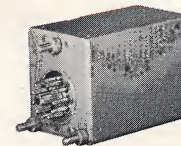
DOYP



DOYEP



DOYH
DOYC



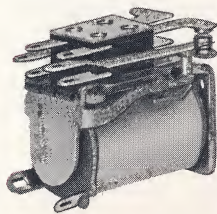
DOYHP
DOYCP

Mountings and Enclosures for DOY Relay

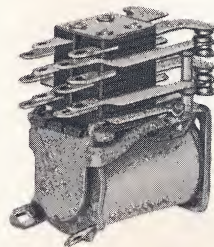


MODEL TT RELAY

DC OPERATION—MADE-TO-ORDER



TT-DPDT



TT-4PDT

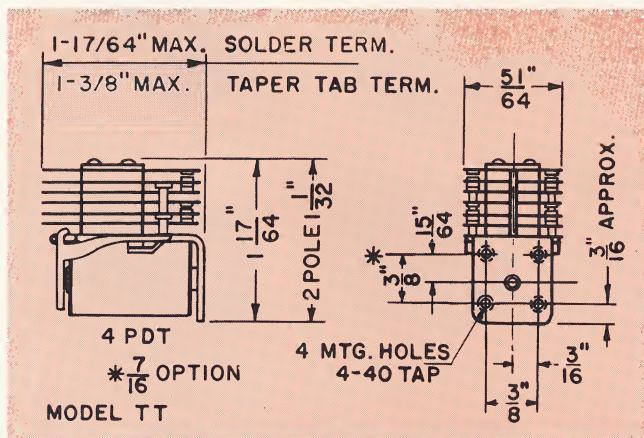
Exceptional sensitivity for a relay of its small size is achieved in the Model TT relay, a high quality miniature telephone type unit. It finds wide application in aircraft as well as in numerous industrial uses (also see Model TS next page). Sensitive performance is the result of several unique design features (described under Model TS Relay, next page).

Military Applications: Model TT relay has been designed to meet the requirements of relay specification MIL-R-5757C (Class A and B) and can be furnished for operation in ambients up to $+125^{\circ}\text{C}$. Hermetically sealed enclosures for military use are also available—see below.

Coil Wattage: The operating coil is rated nominally at .150 watts per pole at an ambient temperature of $+20^{\circ}\text{C}$.

Coil Operating Voltage Range: Coils can be provided for operation up to 115 volts DC.

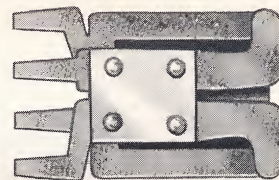
Insulation: Tested at 1000 volts AC between all terminals and ground. Relays intended for operation in ambients up to $+85^{\circ}\text{C}$ are equipped with nylon bobbins. Those intended for operation in ambients up to $+125^{\circ}\text{C}$ are equipped with Kel-F bobbins.



Contact Combinations: Maximum standard combination is 4PDT. Other combinations available on request.

Contact Ratings: Up to 5 amperes at 115 volts AC or 32 volts DC resistive, with standard contact material, palladium. Other materials can be supplied.

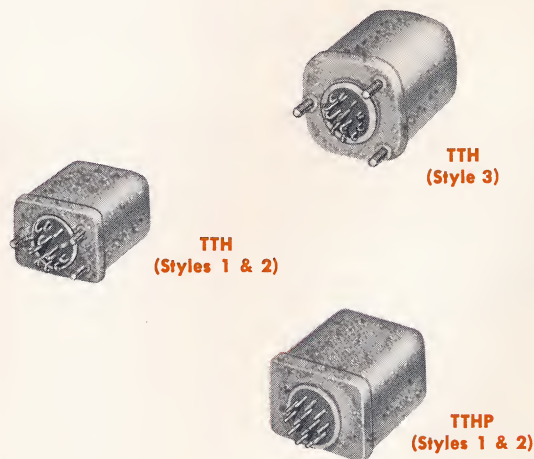
Terminals: Solder terminals are standard. Taper-tab terminals to receive "AMP 78" push-on type female connectors can be furnished upon request.



Taper Tab Terminals

Weight: Approximately 2 ounces for 4PDT unit.

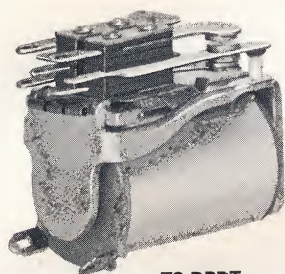
Enclosed TT Relays: Hermetically sealed relays TTH and (plug-in type) TTHP are described on page 23.



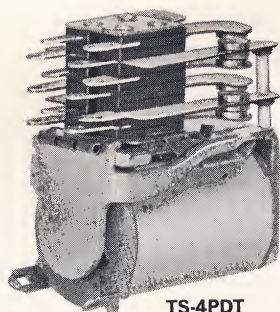
Enclosures for TT Relay

MODEL TS RELAY

DC OPERATION—MADE-TO-ORDER

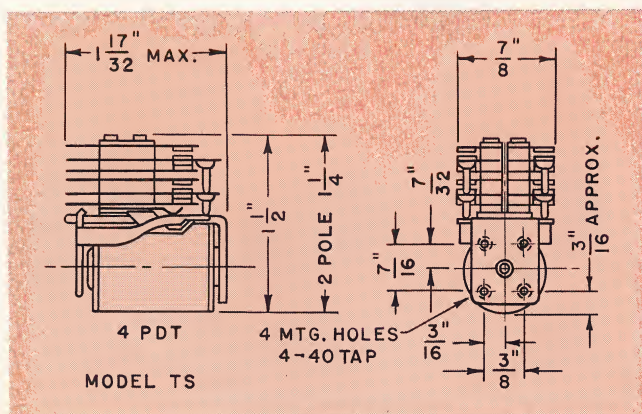


TS-DPDT



TS-4PDT

The Model TS relay is essentially the same type of high quality telephone type unit as Model TT described on the preceding page except that it is somewhat larger and is designed to transfer heavier currents. Like its smaller counterpart, the Model TS relay is exceptionally sensitive for its size and is widely used in aircraft as well as industrial control applications. Sensitive performance is the result of several design features, notable among which is the design of the armature retaining guard which minimizes undesirable heel gap. The resulting manner of assembly, makes it possible to use a staked-in polepiece thereby eliminating an undesirable gap between the frame and polepiece.



Military Applications: Model TS relay has been designed to meet the requirements of relay specification MIL-R-6106C and can be furnished to operate in ambient temperatures up to 125°C. Hermetically sealed enclosures for military use are available—see below.

Coil Wattage: The operating coil is rated nominally at .250 watts per pole at an ambient temperature of +20°C.

Coil Operating Voltage Range: Coils can be provided for operation up to 115 volts DC.

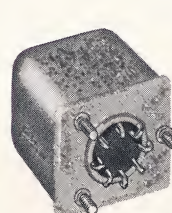
Insulation: Tested at 1000 volts AC between all terminals and ground. Relays intended for operation in ambient temperatures up to 85°C are equipped with nylon bobbins. Those designed for operation in ambients of +125°C are equipped with Kel-F bobbins.

Contact Combinations: Maximum standard combination is 4PDT. Other combinations available on request.

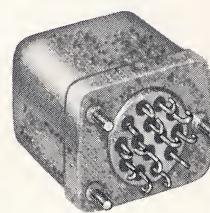
Contact Ratings: Up to 10 amperes at 115 volts AC or 32 volts DC resistive with standard contact material, silver-cadmium oxide. Other contact materials can be supplied.

Weight: Approximately 3 ounces for 4PDT unit.

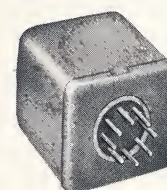
Enclosed TS Relays: Hermetically sealed relays TSH and (plug-in type) TSHP are described on page 23. Enclosures with AN-type connectors can also be furnished.



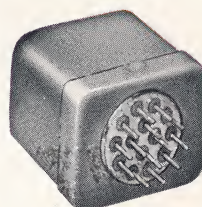
TSH
(Style 1)



TSH
(Styles 2 & 3)



TSHP
(Style 1)



TSHP
(Styles 2 & 3)



AN-Style



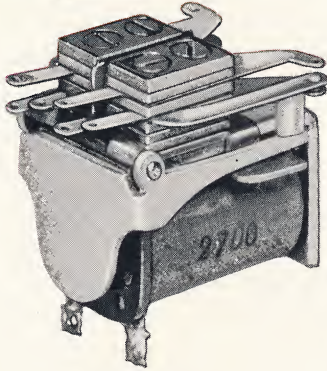
AN-Style

Enclosures for TS Relay

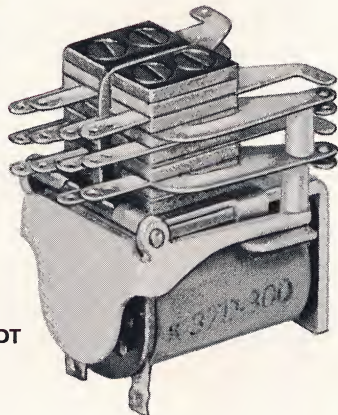


MODEL TKL RELAY

DC OPERATION—MADE-TO-ORDER



TKL-2PDT



TKL-4PDT

Model TKL is a miniature telephone type relay and was designed originally for aircraft control applications. It has high resistance to shock and vibration and finds its widest use when multiple circuit control of small currents is required in a limited space.

Coil Wattage: The operating coil is nominally rated at 1.25 watts DC with a temperature rise not exceeding 45°C. Lower wattages are available.

Coil Operating Voltage Range: Coils can be supplied to operate at any voltage up to 115 VDC.

Insulation: Tested at 750 VAC between all terminals and ground. Special insulation requirements can be met by the use of Mycalex spacers when specified.

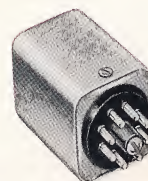
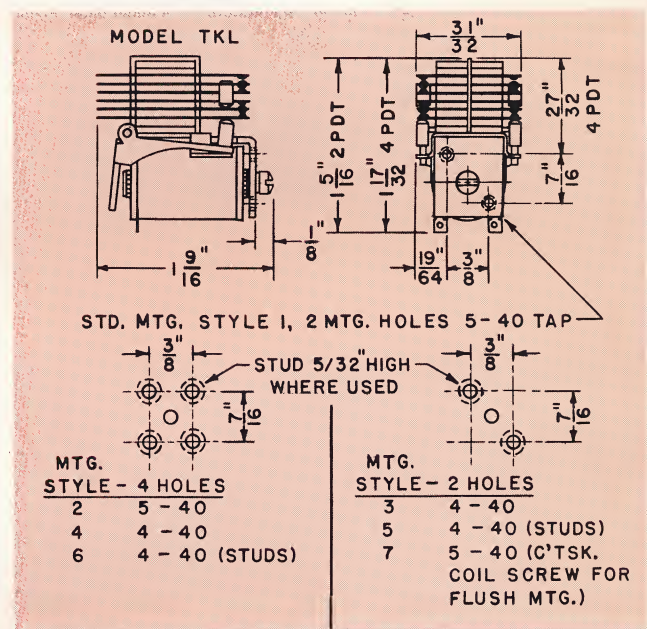
Contact Combination: Maximum standard contact combination, four-pole, double-throw; other combinations available upon request.

Contact Rating: 1 ampere at 115 VAC or 32 VDC resistive loads. Contacts with ratings up to 3 amperes are available.

Weight: Approximately 1 $\frac{3}{4}$ ounces, for 4-pole double-throw unit.

Mounting Styles: The frames can be supplied with tapped holes or studs, as shown, instead of the Style 1 mounting which is standard (see below). Styles 1, 2, 3 and 4 require a $\frac{1}{4}$ " dia. clearance hole in the mounting support for the head of the core screw.

Enclosed TKL Relays: Plug-in type relay with dust cover, TKLEP, described on page 23; Hermetically sealed relays TKLH and (plug-in type) TKLHP, also dust tight relays TKLC and (plug-in type) TKLCP, all described on page 22.



TKLEP



TKLH
TKLC
(Style 1)



TKLH
TKLC
(Style 2)



TKLHP
TKLCP
(Style 1)



TKLHP
TKLCP
(Style 2)

Enclosures for TKL Relay

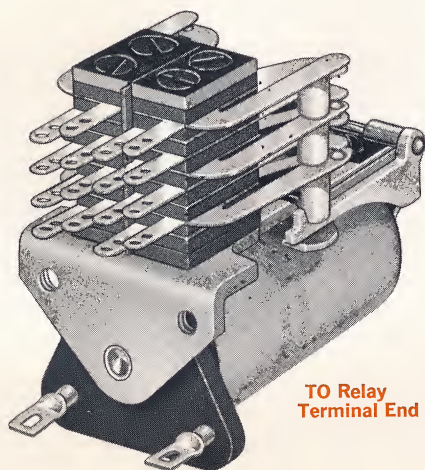
TYPICAL OPERATING DATA

FOR DC OPERATION

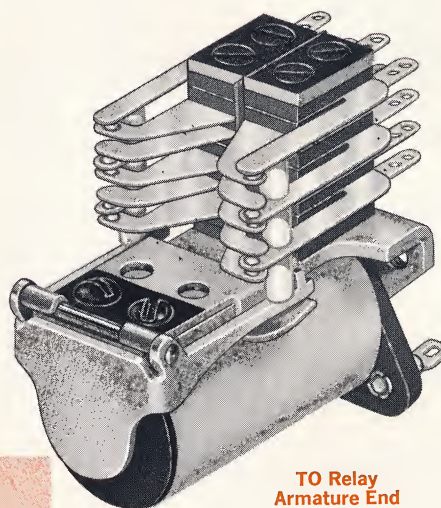
DC Voltage	Resistance Ohms	Current Amperes
6	23.6	.26
12	94.0	.128
24	300.0	.080
48	2,080.0	.023
110	10,000.0	.011

MODEL TO RELAY

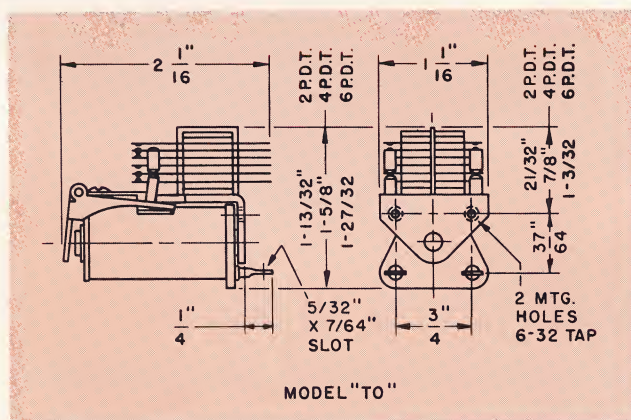
DC OPERATION—MADE-TO-ORDER



TO Relay
Terminal End



TO Relay
Armature End



The longer coil of Ohmite's new Model TO relay provides increased operating sensitivity as compared to the Model TKL (miniature telephone type) to which it is similar. Operating voltage range of the Model TO is greater and it can carry a greater number of contacts. The relay features a mounting similar to the standard long telephone types; i.e., terminals project at the mounting end for typical chassis assembly. Model TO incorporates the time-proven hinge-pin armature construction and a staked-in polepiece which eliminates the undesirable air-gap between polepiece and frame, and thereby increases sensitivity.

Coil Wattage: 100 milliwatts per pole at an ambient temperature of 20° C.

Coil Operating Voltage Range: Up to 220 volts DC.

Insulation: Laminated phenolic . . . Tested at 750 volts

AC between all terminals and ground. Mycalex insulation can be supplied for special requirements.

Contact Combination: Maximum standard contact combination is six-pole, double-throw.

Contact Rating: 3 amperes at 115 VAC or 32 VDC, resistive with standard palladium contacts. Contacts with ratings up to 5 amperes are available.

Coil Resistance: Maximum resistance is 20,000 ohms.

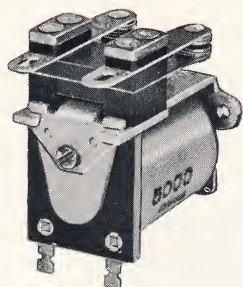
Weight: Approximately 3.5 ounces for 4PDT unit.

Enclosures: Write for complete information on hermetically sealed or dust-tight enclosures for Model TO relay.



MODEL CR, QC RELAYS

MADE-TO-ORDER



Model CR

MODEL CR RELAY—AC or DC OPERATION

A small, positive action unit with single-pole, single-throw, double-break, normally open or normally closed contacts having high load capacity. Contacts can be supplied as double-pole, single-throw, normally open.

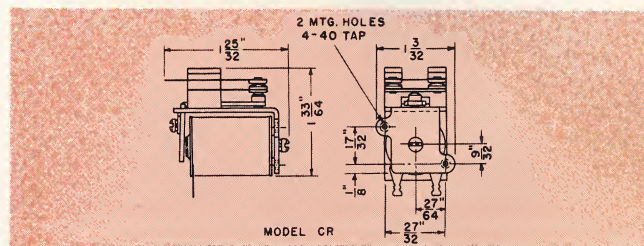
Coil Wattage: 2.75 watts DC with temperature rise not exceeding 45° C; 5.6 watts 60 cycle AC with temperature rise not exceeding 75° C. Lower wattages available.

Coil Operating Voltage Range: Any voltage up to 230 VDC or 440 VAC at 60 cycles.

Insulation: Tested at 1000 VAC.

Contact Combination & Rating: For SPST-N.O. or N.C., double break—15 amperes at 115 VAC or 32 VDC resistive load; for DPST-N.O.—7.5 amperes.

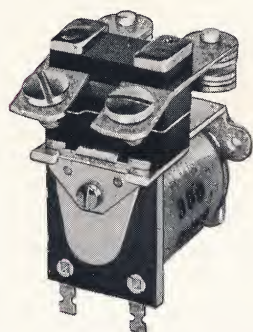
Weight: Approximately 3 ounces (84 grams).



Plug-In, Enclosed and Snap-Switch CR Relays: Plug-in relay CRP described on page 21; Hermetically sealed relay CRH and dust tight CRC on page 22; Snap-switch type CRSA on page 27. See Guide, page 5, for illustrations of enclosures.

TYPICAL OPERATING DATA

FOR 60 CYCLE AC			FOR DC		
AC Voltage	DC Resistance Ohms	Current Amperes	DC Voltage	DC Resistance Ohms	Current Amperes
6	1.0	1.20	6	15.2	.40
12	4.2	.60	12	63.4	.20
24	15.7	.38	24	238.0	.10
48	61.7	.19	48	858.0	.056
115	380.0	.075	110	5,100.0	.022
230	1,420.0	.046	230	20,600.0	.011



Model QC

MODEL QC RELAY—AC or DC OPERATION

The Model QC relay may be considered a miniature contactor for industrial applications. The contact arms carry screw type terminals.

Coil Wattage: 2.75 watts DC with temperature rise not exceeding 45° C; 5.6 watts AC with temperature rise not exceeding 75° C.

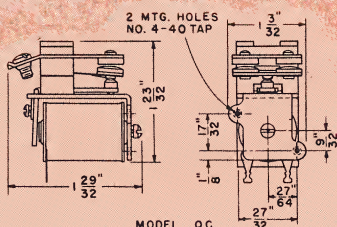
Coil Operating Voltage Range: To any voltage up to 230 VDC or 440 VAC, 60 cycle.

Insulation: Tested at 1000 VAC.

Contact Combination: Single-pole, single-throw, normally open, double break.

Contact Rating: 25 amperes at 115 VAC or 32 VDC resistive loads.

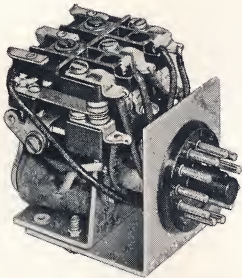
Weight: Approximately 3 ounces (84 grams).



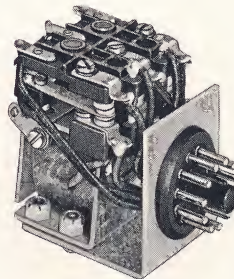
TYPICAL OPERATING DATA

FOR 60 CYCLE AC			FOR DC		
AC Voltage	DC Resistance Ohms	Current Amperes	DC Voltage	DC Resistance Ohms	Current Amperes
6	1.0	1.20	6	15.2	.40
12	4.2	.60	12	63.4	.20
24	15.7	.38	24	238.0	.10
48	61.7	.19	48	858.0	.056
115	380.0	.075	110	5,100.0	.022
230	1,420.0	.046	230	20,600.0	.011

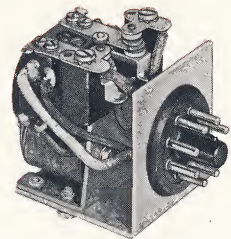
RELAYS WITH PLUG-IN MOUNTING



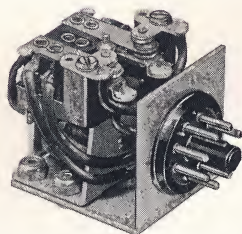
DOYP



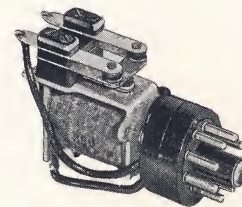
DOP



DOSYP

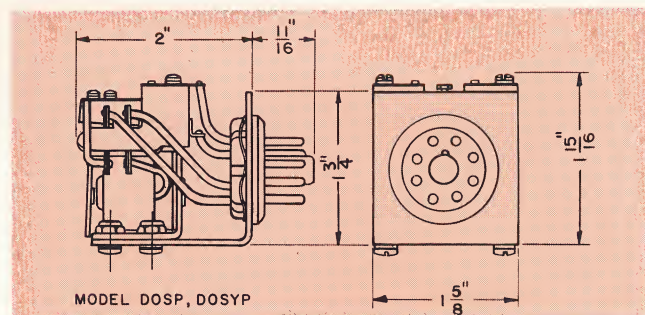


DOSP

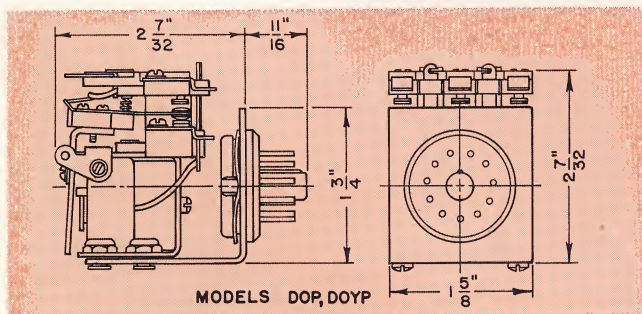


CRP

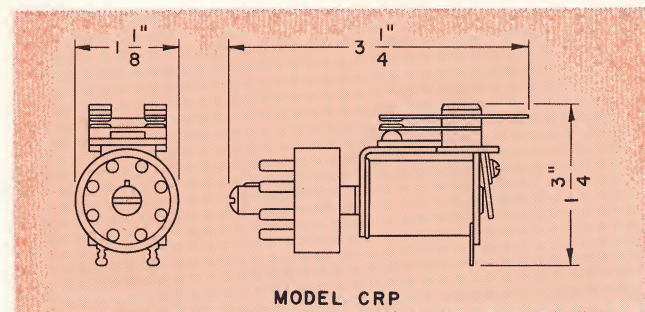
Plug mountings make for virtually effortless replacement of components, and standard Ohmite relays such as DOS, DOSY, DO, DOY and CR can be furnished on plug bases. Where plug mounting is supplied, the suffix "P" is added to the basic model code as in "DOSP" (basic relay DOS). Operating data for these plug-mounted relays is the same as for unmounted relays. See basic relay descriptions for data. Illustrations below give pertinent dimensional data for these units.



Models DOSP and DOSYP: Octal plug standard—allows for DPDT contacts maximum. Mountings for DOSP and DOSYP are identical.



Models DOP and DOYP: Style No. 1 uses an 11 pin, octal style plug; Style No. 2 uses Howard B. Jones industrial plug. Number of pins will be varied to suit specified contact combination.



Model CRP: Octal plug is standard—allows for SPST-N.O. double break contacts.

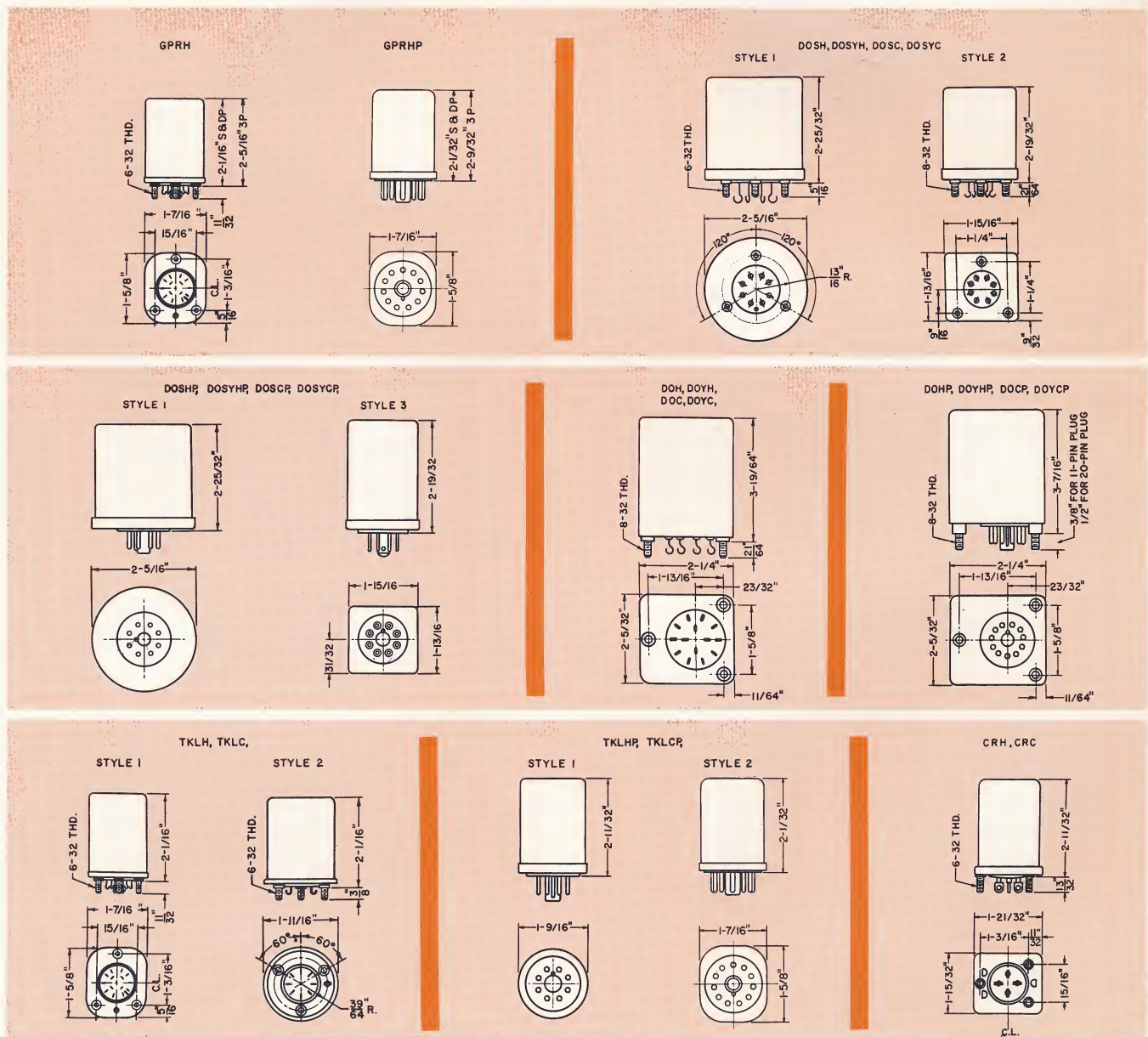


HERMETICALLY SEALED AND

Hermetically Sealed Relays, protected from ambient conditions have become important to industry and particularly to the Armed Forces where components are called upon for unfailing operation under the most adverse conditions. These non-removable enclosures are exhausted and filled with dry nitrogen or other gas. A trace of helium is added to the gas so that leakage tests can be made by means of the mass spectrometer—the most sensitive device available for this purpose. Ohmite supplies many of its basic relays in hermetically sealed enclosures as illustrated in the Selection Guide and individual relay descriptions. Dimensions for the enclosures are shown below.

Ohmite relays available in hermetically sealed enco-

losures carry different model designations i.e., letter suffixes are added to the basic relay model depending upon the type of enclosure. Thus, hermetically sealed relays with solder terminal "headers" carry the suffix "H" as in "DOSH" (basic relay DOS). Hermetically sealed relays with plug-in type headers carry the suffix "HP" as in "DOSHP". Where more than one design or size of enclosure is available, it is also distinguished by a "style" number as shown below. For operating data concerning these relays, refer to basic model descriptions in the preceding pages. *Stock hermetically sealed relays are listed on pages for DOS and DO relays. Enclosures other than those shown here can be supplied to order.*



Dimensions of Hermetically Sealed and Dust Tight Enclosures

DUST TIGHT RELAYS

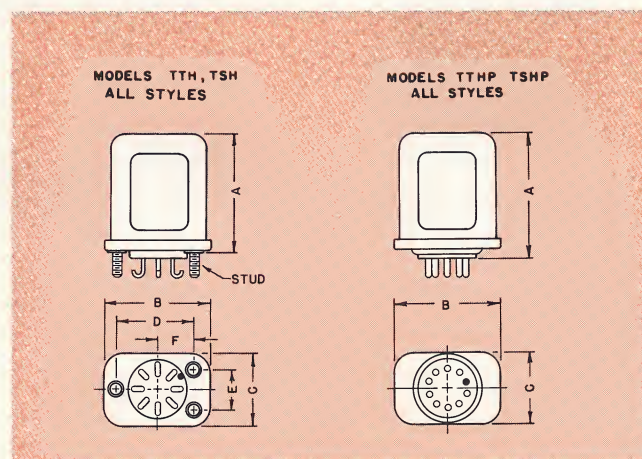


Dust tight relays employ non-removable enclosures identical with the hermetically sealed types except for the absence of a solder seal and the omission of evacuation and gas filling. The suffixes that designate relays so enclosed are "C" for the solder terminal type of enclosure as in "DOSC" (DOS basic relay) and "CP" for the plug-in type of dust tight enclosure as in "DOSCP". Dust tight relays have the same dimensions as their hermetically sealed counterparts and the drawings below consequently carry both model designations.

Terminals and Headers: The number of solder terminals or pins in the headers of hermetically sealed or dust-tight units is varied to fit the size of the relay contact combination.

Finish: Enclosures have a durable, light grey finish. The circuit diagram is printed on each can or provided on drawings where small quantities are involved.

Military Enclosures: Hermetically sealed units in AN-type enclosures and/or with AN-type connectors can be provided.



Dimensions of Hermetic Enclosures for TT and TS Relays

MODEL TTH									
Contact Comb.	Style Enc.	A	B	C	D	E	F	Studs	Term.
1 C or 2 C	1	1 ²¹ / ₃₂	1 ²¹ / ₆₄	1 ⁵ / ₁₆	1	1/2	1 ⁵ / ₃₂	2 ¹ / ₄ x 4-40	8
3 C or 4 C	2	1 ²¹ / ₃₂	1 ²⁷ / ₆₄	1	1	1/2	1 ⁵ / ₃₂	2 ¹ / ₄ x 4-40	14
3 C or 4 C	3*	2 ¹ / ₃₂	1 ⁵ / ₈	1 ⁷ / ₁₆	1 ³ / ₁₆	1 ⁵ / ₁₆	1/2	3/8 x 6-32	14

*Same as enclosure used for AN3304-1

MODEL TTHP					
Contact Comb.	Style Enc.	A	B	C	Pins
1 C or 2 C	1	1 ²³ / ₃₂	1 ²¹ / ₆₄	1 ⁵ / ₁₆	7 & 9 Resp.
3 C or 4 C	2	1 ²³ / ₃₂	1 ²⁷ / ₆₄	1	14

MODEL TSH									
Contact Comb.	Style Enc.	A	B	C	D	E	F	Studs	Term.
1 C or 2 C	1	2 ¹ / ₃₂	1 ²¹ / ₃₂	1 ¹⁵ / ₃₂	1 ³ / ₁₆	1 ⁵ / ₁₆	3 ¹ / ₄	1 ³ / ₃₂ x 6-32	8
3 C or 4 C	2	2 ¹ / ₈	2 ⁷ / ₆₄	1 ¹¹ / ₃₂	1 ⁵ / ₈	1	1 ³ / ₁₆	1 ³ / ₃₂ x 6-32	14

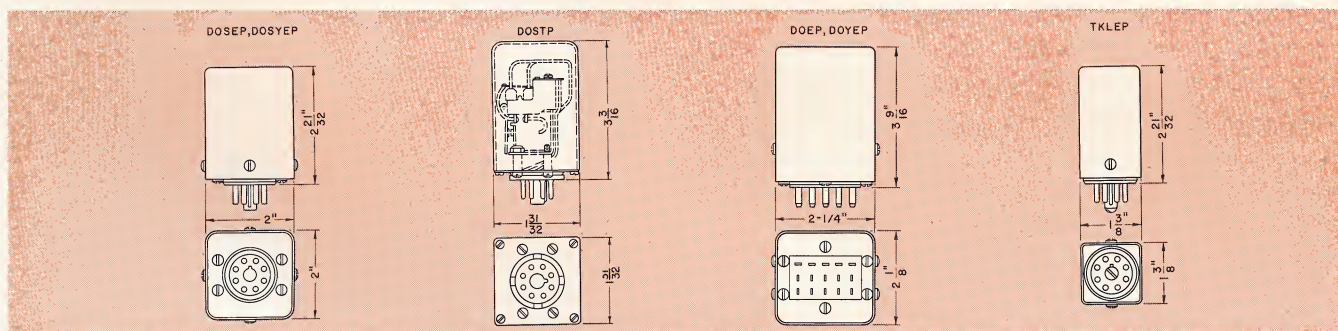
MODEL TSHP					
Contact Comb.	Style Enc.	A	B	C	Pins
1 C or 2 C	1	2	1 ⁵ / ₈	1 ⁷ / ₁₆	8
3 C or 4 C	2	2 ³ / ₃₂	2 ⁷ / ₆₄	1 ¹¹ / ₃₂	14

PLUG MOUNTED RELAYS WITH DUST COVER

Ohmite relays equipped with plug base and removable covers. Covers are attached with screws. Metal (drawn aluminum) covers are indicated by the suffix "EP" as in "DOSEP" (for DOS relay). A transparent enclosure is shown (below) only for the DOS relay* and is indicated by the suffix "TP." *Important: Highly versatile transparent enclosures for GPR type relays are described on page 6.* **PLUGS**—All enclosures described below

incorporate a standard octal plug termination except enclosures for DOEP or DOYEP which feature a 15 prong Jones Industrial Plug. For 3-pole, double-throw combinations, DOEP or DOYEP can be provided with an 11-point, octal-style plug.

*Contacts of the DOSTP relay are rated at 15 amperes also, provided the switching rate does not exceed one per minute. Contacts should be derated to 10 amperes when the switching rate is more than 1 and not more than 4 per minute.

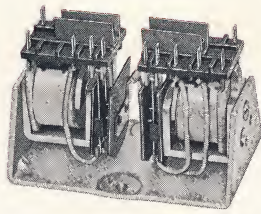


Dimensions of Plug-Mounted Relays with Dust Covers

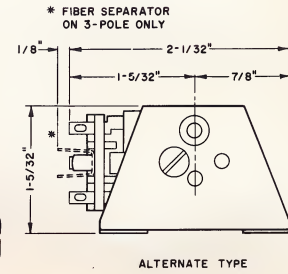
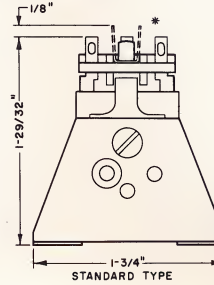
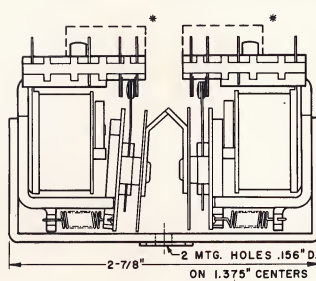


LATCHING RELAYS— ELECTRICAL RESET

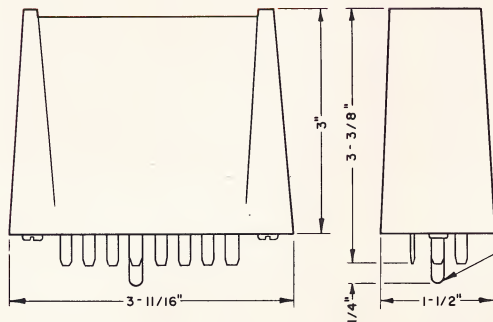
MODELS GPRLE, GPRLETP



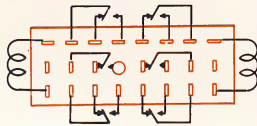
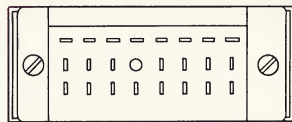
6PDT Latching Relay (GPRLE)



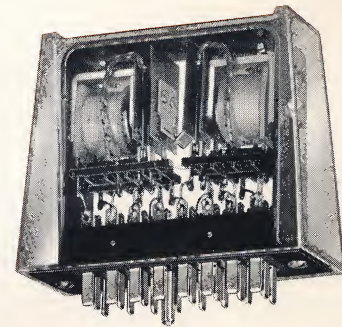
Dimensions — Unenclosed Latching Relay (GPRLE)
("Standard" configuration is furnished on stock units)



HOWARD B. JONES
PLUG P-324-SB,
MATES WITH JONES
S-324-AB SOCKET



PLUG WIRING FOR 6PDT, GPRLETP RELAY. ON 4PDT,
TERMINALS IN GREY AREA WOULD NOT BE WIRED.



Enclosed Latching Relay (GPRLETP)

Dimensions — Enclosed Latching Relay (GPRLETP)

Latching relays consisting of two GPR relays, each with any number of contacts up to the maximum (3PDT). The armatures of both relays are so linked that the normally open contacts of one relay are mechanically latched in the closed position when the relay is energized. It remains latched even after the energizing current is removed until the other relay is energized. The second relay remains closed after de-energizing until the first relay is pulsed again. GPR latching relays thus make it possible to switch up to 6 circuits and hold for long periods without continuous relay coil current and with resetting accomplished remotely. Coils of AC Latching Relays are rated 3.7 volt-amperes. Operating characteristics are otherwise as described on page 6.

"GPRLETP" Enclosed, Plug-Base Type: This is the same relay assembly as the unenclosed GPRLE described above but supplied in a clear plastic enclosure with a Jones P-324-SB Plug. See stock tables.

UL and CSA approval: Unenclosed GPR latching relays (except for 230 VAC ratings) carry the UL stamp. Enclosed versions are approved under the UL "Components Program". See "UL and CSA . . .", page 9.

STOCK "GPR" LATCHING RELAYS 5 Amp Contacts

Total Contacts	COIL DATA—(Each Coil)			UL	CSA	UL Enclosed	CSA
	Volts	Amps.	Ohms	Unenclosed GPRLE †	Unenclosed GPRLETP †	Plug-Base GPRLETP †	Plug-Base GPRLETP †
4PDT	6 VAC	.650	2.5	GPRLEX-1T	GPRLETPX-1T		
6PDT	6 VAC	.650	2.5	GPRLEX-2T	GPRLETPX-2T		
4PDT	12 VAC	.309	10.0	GPRLEX-3T	GPRLETPX-3T		
6PDT	12 VAC	.309	10.0	GPRLEX-4T	GPRLETPX-4T		
4PDT	24 VAC	.155	40.0	GPRLEX-5T	GPRLETPX-5T		
6PDT	24 VAC	.155	40.0	GPRLEX-6T	GPRLETPX-6T		
4PDT	115 VAC	.0325	1,000	GPRLEX-7T	GPRLETPX-7T		
6PDT	115 VAC	.0325	1,000	GPRLEX-8T	GPRLETPX-8T		
4PDT	230 VAC	.0147	4,000	GPRLEX-9T	GPRLETPX-9T		
6PDT	230 VAC	.0147	4,000	GPRLEX-10T	GPRLETPX-10T		
4PDT	6 VDC	.23	26	GPRLEX-11T	GPRLETPX-11T		
6PDT	6 VDC	.23	26	GPRLEX-12T	GPRLETPX-12T		
4PDT	12 VDC	.114	105	GPRLEX-13T	GPRLETPX-13T		
6PDT	12 VDC	.114	105	GPRLEX-14T	GPRLETPX-14T		
4PDT	24 VDC	.060	400	GPRLEX-15T	GPRLETPX-15T		
6PDT	24 VDC	.060	400	GPRLEX-16T	GPRLETPX-16T		
4PDT	110 VDC	.0110	10,000	GPRLEX-17T	GPRLETPX-17T		
6PDT	110 VDC	.0110	10,000	GPRLEX-18T	GPRLETPX-18T		
Approx. weight —>				7.0 oz.		11.3 oz.	

†Column heads carry symbols to indicate UL or CSA (Canadian Standards Association) approval. A color tint in column indicates relay carries UL stamp; a grey tint indicates that relay is recognized under UL "components program" and does not carry UL stamp. See explanation in "UL and CSA Approval," page 9.

LATCHING RELAYS— ELECTRICAL RESET



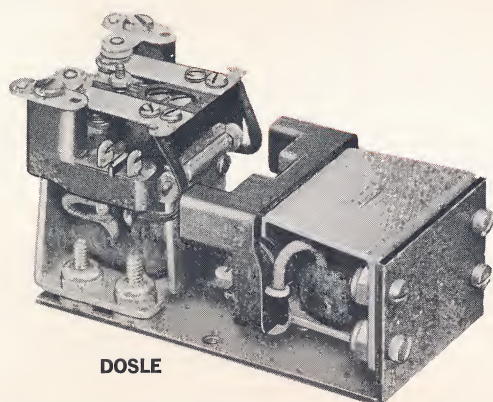
MODELS DOSLE, DOLE

Latching relays incorporating Model DOS (DOSLE) or DO (DOLE) relays. The armature is mechanically latched to the armature of a reset magnet so that the normally open contacts of the relay close when the coil is momentarily energized and remain closed after the coil energizing voltage has been removed. The armature is released and the contacts are returned to the normal position by impulsing the reset coil. Thus, the contacts may be maintained in closed position for long periods of time without continuous coil current and resetting is accomplished remotely.

The Model DOSLE and DOLE latching relays differ from the Model GPRLE and GPRLETP (on the opposite page) in that their reset magnets function strictly as latching and release devices and carry no contacts of their own. The DOS and DO relays used here, have the same operating characteristics as their counterparts described in the preceding pages.

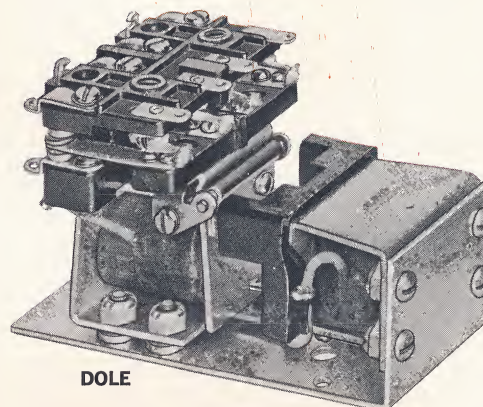
For made-to-order units specify operating voltage for both the relay and reset coils and indicate AC or DC operation. Stock DOSLE and DOLE relays are shown in the tables below.

MODEL DOSLE

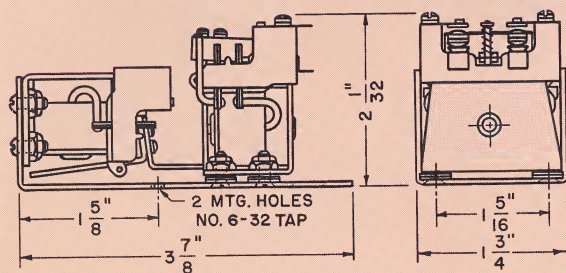


DOSLE

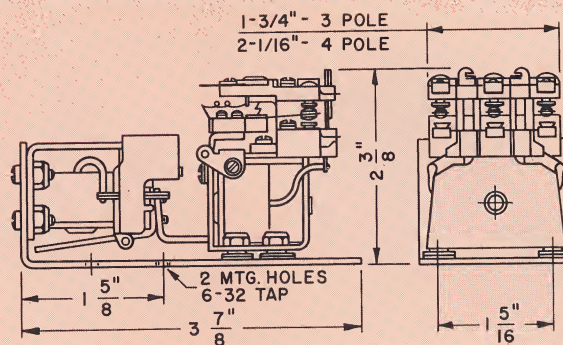
MODEL DOLE



DOLE



MODEL DOSLE



MODEL DOLE

STOCK DOSLE LATCHING RELAYS 15 Amp Contacts

Cat. No.	Type	Normal Position	COIL DATA†		
			Volts	Amps.	DC Ohms
DOSLEX-1T	DPDT	—	115 VAC	.043	450

†Coil data applies to relay part of latching assembly. Reset magnet operates on 115 VAC, 60 cycle also.

STOCK DOLE LATCHING RELAYS 10 Amp Contacts

Cat. No.	Type	Normal Position	COIL DATA†		
			Volts	Amps.	DC Ohms
DOLEX-3T	3PDT	—	115 VAC	.110	145
DOLEX-5T	4PDT	—	115 VAC	.110	145

†Coil data applies to relay part of latching assembly. Reset magnet operates on 115 VAC, 60 cycle also.

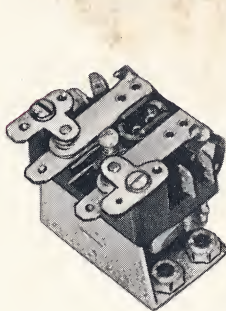


RELAYS WITH SPECIAL TERMINALS OR SPECIAL CONSTRUCTION

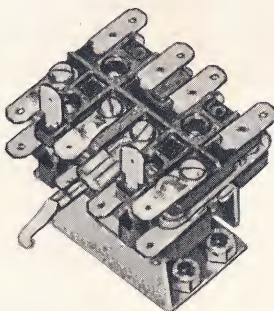
RELAYS WITH PUSH-ON OR SCREW TERMINALS

Model DOS, DOSY, DO, or DOY relays can be supplied with solderless "push-on" type terminals which will receive a female connector similar to AMP, "Faston" No. 41202 or a corresponding ARK-LES connector. The same relays can also be supplied with screw-type terminals. Operating characteristics for these relays are

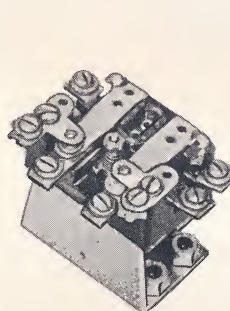
the same as indicated in the individual relay sections for DOS, DOSY, DO and DOY relays. To order units with these terminals, specify "push-on" or "screw" terminals in addition to the proper ordering code (see Introduction). For relays with other types of push-on and tab terminals, see pages 6 and 16.



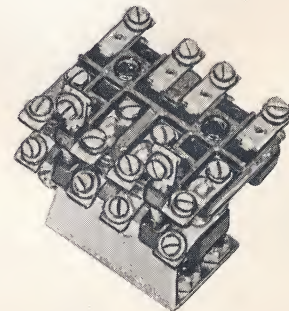
DOS — Push-On;



DO — Push-On;



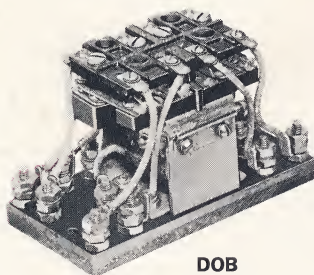
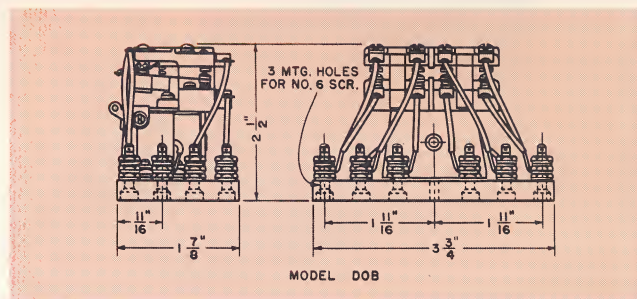
DOS — Screw;



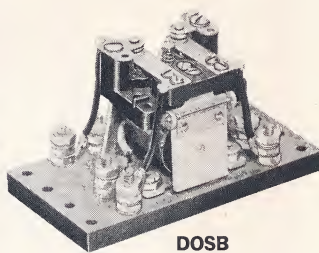
DO — Screw

RELAYS WITH BINDING-POST TERMINALS

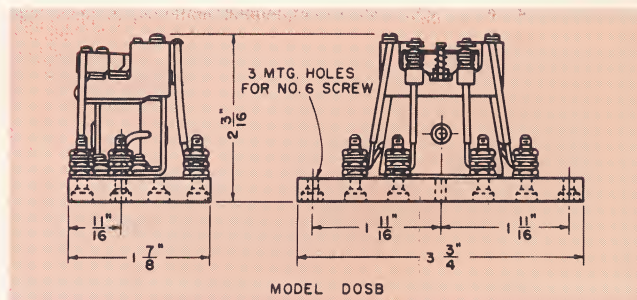
Models DOSB and DOB are used where screw type binding posts are preferred to solder type terminals. The DOSB and DOB are actually the standard Model DOS and DO relays mounted on a heavy laminated plastic base. Operating data for the standard Models DOS and DO, applies to the DOSB and DOB. Approximate weight of the DOSB and DPDT contact combination is 8 ounces; the approximate weight of the DOB with four pole, double throw contact combination is 12 ounces.



DOB

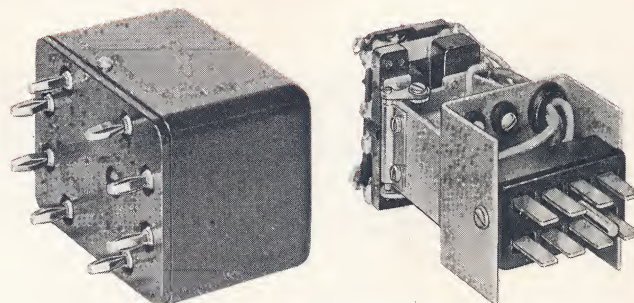


DOSB



"SPECIALS" MADE TO YOUR SPECIFICATIONS

Where quantities warrant, Ohmite will manufacture relays with special features. Ohmite can furnish not only special terminals, special contact combinations, contact materials, and coils, but special enclosures, connectors, impregnation, or frames. For example, the illustration shows a DOS relay with special black bakelite base and enclosure and banana plug that meets Underwriters' Laboratories spacing requirements, and a standard DO relay with special mounting employing a Jones industrial plug.

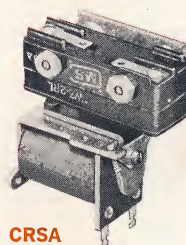


Typical Custom-Made Relays

RELAYS WITH SNAP-SWITCH— LEAF SWITCHES—COILS



RELAYS WITH SNAP-ACTION SWITCH CONTACTS



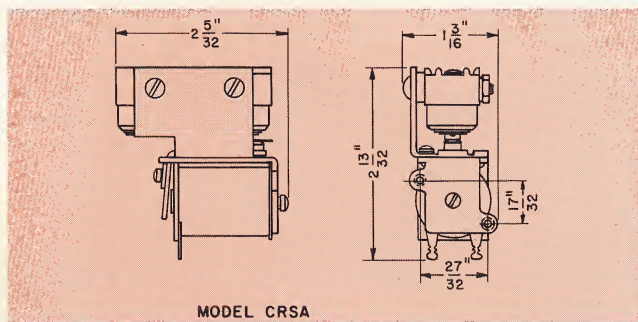
CRSA

To obtain sensitive relay operation with heavy duty contacts, the CR relay is available with snap-action switch contacts. These switches have a high current rating and are available in a variety of contact combinations and sizes. The switch-equipped CR relay is called Model CRSA.

Switch Contact Combinations: Standard combinations—SPST, N.O.; SPST, N.C.; and SPDT. DPDT and DPST switches can sometimes be supplied.

Contact Ratings: 10 amperes at 115 VAC non-inductive load. Switches of higher rating are available.

Coil Operating Data: Refer to the operating data for the Model CR on page 20.

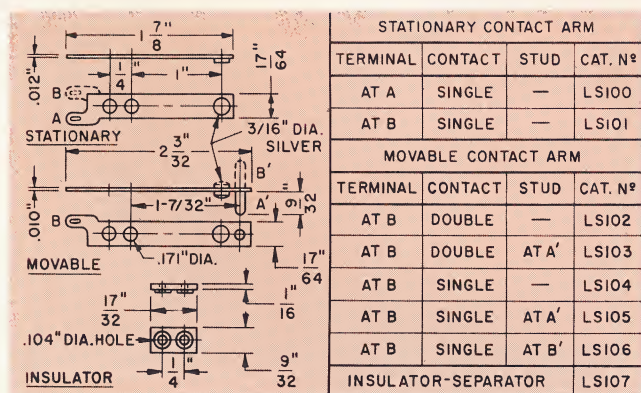


LEAF SWITCH



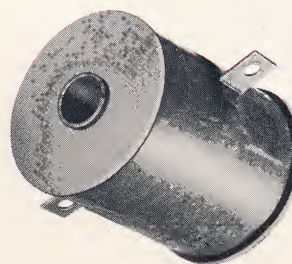
Leaf Switch

Virtually hundreds of different switch assemblies can be made. Illustrated is a typical example of a leaf switch assembly. The drawing shows the most commonly used parts. Ohmite engineers welcome your inquiry.



Model LS Leaf Switch Parts

COIL WINDINGS



Coil

Ohmite can supply coils to meet individual specifications. Layer-wound coils have a sheet of high temperature cellulose-acetate between each layer of wire and by means of heat and pressure, the acetate is caused to flow around the ends of the coil, forming a completely plastic-sealed coil. This process affords maximum protection from ambient conditions, particularly moisture and humidity. Bobbin wound coils can also be supplied. Your inquiries are invited.

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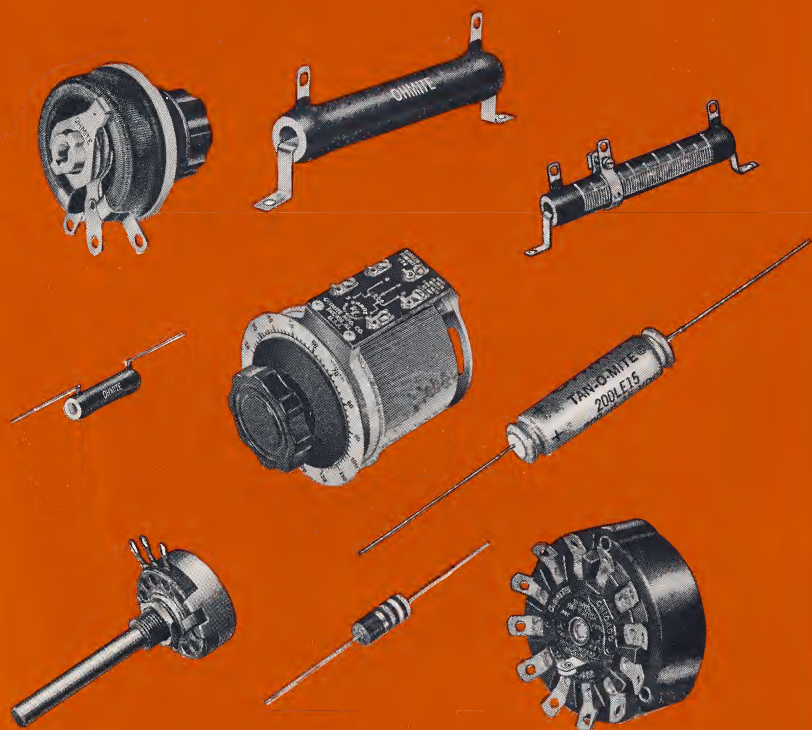
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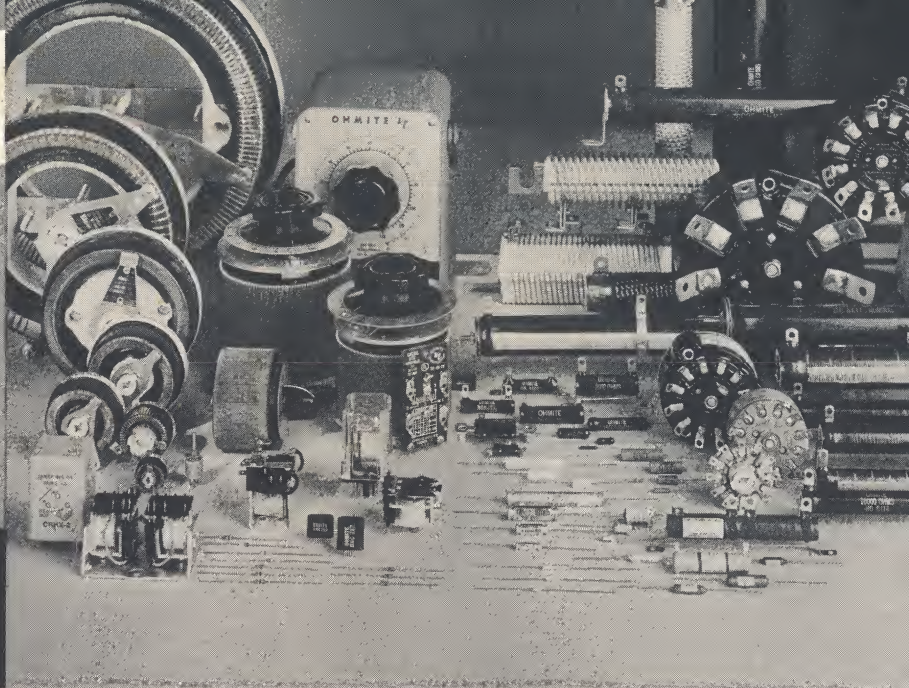
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